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THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JULY 3, 1891. No. 511.

JAMES RUSSELL LOWELL.

OUR picture this week is an excellent portrait of another eminent American. James Russell Lowell is known to fame in more than one capacity. As a diplomat and statesman he ranks with the foremost of his countrymen, while as a poet and an author he stands in the very first rank of living English writers. As the author of the inimitable "Bigelow Papers," the noble "Commemoration Ode," or the United States minister to the most important court of Europe, Lowell will be long and equally remembered with pride by his countrymen. He is a type of the best American, and as such has brought honor on his country in two hemispheres. We are glad to present our readers with so excellent a likeness of this distinguished American. It is one of the series by Mr. Gutekunst, which we have frequently referred to in these columns, and of which we have already given our readers two or three examples. They are all models of excellence for the study of our portrait makers. The signature is a fac simile, by a photographic process, of Mr. Lowell's own autograph.

COLORING LANTERN SLIDES.

OBVIOUSLY the brilliant polychromatic tints of pigmentary colors are next to the warm monochrome obtained by development or toning; and, although a colored photographic slide is to us personally an eyesore and abomination, and we give the following directions, which are condensed from a series of articles which appeared some time ago in THE PHOTOGRAPHIC TIMES from the pen of Mr. A. W. Scott.

All coloring should be done by daylight, unless it is intended that the slides shall only be shown by the ordinary oil lamp, as slides which are colored by gas or lamplight are rarely true in value, when viewed by a whiter light such as the lime or daylight. The essentials for this work are an easel, palette, brushes, colors and mediums, and dabbers.

The Easel—The best is undoubtedly the usual retouching desk. Failing this, remove the springs from an ordinary half or whole plate printing frame, and prop it up at an angle of 45 deg., place underneath a mirror, and as far as possible, make it like a retouching desk.

The Palette.—The best and cheapest substitute for the wooden palette, which is useless for this purpose, is a piece of opal glass.

The Brushes.—These should be "water color sables," which are fine and soft; and they must also be round and not flat; three only will be required, one with hairs ½ inch long, one ¾ inch, and one 1 inch. The hairs should always be brought to a fine point, and should never be put away with any color in them. One should be kept for dark colors, and the others used as occasion requires

The Colors.—Either water or oil colors may be used, but preferably the oil. The ordinary collapsible tubes of oil paints are quite as good as those sold specially for the purpose and rather cheaper. The following are the only colors required and suitable:

1 Prussian Blue D 2 French Ultramarine 3 Indigo D 4 Antwerp Blue	Blue Pigments	
5 Verdigris	Green	"
6 Italian Pink 7 Yellow Lake D 8 Gamboge	Yellow	"
9 Burnt Sienna D 10 Burnt Umber D 11 Caledonian Brown 12 Asphaltum D	Brown	"
13 Crimson Lake D 14 Madder Lake 15 Rose Madder	Red	"
16 Ivory Black D 17 Lamp Black D 18 Blue Black D	Black	"

D signifies that these colors can be dabbed; the others are suitable for brush work only.

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1. *Prussian Blue.*—A splendid blue, but should be sparingly used. The color for skies and flat tints.

2. *French Ultramarine.*—Purer in tint than Prussian blue, but less useful, as it can only be used for brush-work. It makes fine purples by a mixture with the crimsons.

3. *Verdigris.*—An extremely useful color—the one most used for tinting foliage on slides, especially when in shadow; for deeper shadows the tints may be lightened by adding a little Indian pink. A good green may be made by mixing yellow lake with Prussian blue.

6. *Italian Pink.*—The most useful yellow, very transparent, forms a good scarlet with crimson lake. It is however very slow in drying, and should be mixed with a quick drying varnish.

7. *Yellow Lake* is not perfectly transparent, and gives a more brownish tinge than 6.

8. *Gamboge*, absolutely transparent, so thin as to be almost useless; when applied thick gives orange, and is useful for gold. It dries slowly.

9. *Burnt Sienna*, a brown pigment of good body useful for dabbing. With Prussian blue it serves for olive-green tints, and with crimson makes just the tint for tiles and brick-work. It appears darker on the screen, as it is not transparent.

10. *Burnt Umber* is not perfectly transparent, rather darker than 9. Dabs well and dries quickly.

11. *Caledonian Brown* it more yellow in tone, and a less useful color than 9 and 10; it dries quickly.

13. *Crimson Lake*, the most powerful red tint, is not perfectly transparent, and therefore appears darker on screen than on slide. Pale tints are easily obtained by dabbing. A more transparent crimson may be obtained by diluting the color with turpentine, and allowing to settle for a short time, then pouring off the turpentine into a clean bottle, and allowing it to stand for some hours, till the whole of the color is precipitated, the turpentine should be then poured off, and the color mixed with a little mastic varnish, when it is fit for use. Mixed with Italian pink 6, a bright scarlet is obtained.

14. *Madder Lake and* (15) *Rose Madder* are nearly identical; they possess but little intensity, and are perfectly transparent. Gamboge and Italian pink are sometimes added to enrich the tints. They both require the addition of some quick drying varnish.

16, 17, and 18. *Ivory Black, Lamp Black, and Blue Black*, are all useful for dabbing, dry quickly, give good grays when diluted with varnish, and by mixture with any of the other pigments produce more sober tints.

The Mediums.—Nut, linseed, and poppy oils should be avoided, as they lower the transparency, and, therefore, the brilliancy of the colors. The three best mediums are mastic varnish, japanner's gold size, and Robinson's medium.† Pure rectified turpentine alone should be used to thin the colors, but the common may be used for cleaning brushes. Every color must be used with a little of one or other of the mediums. For dabbing, the paint need not be thinned, but for brush work they must be thinned to the consistency of cream, by this means the marks of the brush will quickly subside. Japanner's gold size is of a slightly yellowish tint, and must be used therefore for warm tints only. Mastic varnish and gold size are both quick dryers. Robinson's medium should be used with Prussian blue, burnt sienna, burnt umber for flat tints. A little mastic varnish should be added to crimson-lake, yellow-lake and Italian pink for flat tints for dabbing.

Dabbing.—The greatest difficulty for the beginner will be found in the laying of even tints free from brush marks, and other irregularities, the magnifying power of the lantern necessitating tints as smooth as the glass. This evenness is produced by dabbing, which can only be applied to those colors possessing some intensity, so that an extremely thin coat of paint will suffice. The color should be of the consistency of stiff paste, which may be obtained by adding Robinson's medium to colors of great intensity, mastic varnish being used for those of less intensity, which have more oil in them. A little of the pigment mixed with the medium is put on the slide, and then rendered even by the action of the dabber. There are several kinds of dabbers, one being a large round camel's hair brush, with the hair cut off in the middle, so that they terminate in a flat surface instead of a point. The brush is then used with a stippling, or up and down motion. A better kind of dabber is made by covering the end of a short stick with a little pad of cotton wool inclosed in a piece of smooth thin wash leather or old kid glove. But the best dabber is the top of one of the fingers, usually the third on the right hand, the tint being lightly tapped with this, the position of

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† Mastic varnish can be made as follows:

Gum mastic	1 part
Pure turpentine	10 parts

Japanner's gold size:

Gum ammoniacum	4 ounces
Linseed oil (pale)	1 ounce

Dissolve by boiling, then thin with turpentine.

the hand being altered from time to time, so that the marks of the skin furrows shall cross each other in all directions. It is best to varnish all collodion slides before commencing dabbing, though the same is unnecessary for those made on gelatine plates.

Painting Skies.—The sky is the first part that claims attention in a landscape, and Prussian blue should be applied, and rendered even by dabbing. To make white cumulous clouds is comparatively easy, and for this purpose cut an old penholder into a tapering wedge at one end, over which stretch a soft clean piece of wash leather, five or six inches square, the loose ends being gathered up in the hand; with this the paint can be wiped off where required, a sharp clean edge being left for the upper part, the lower edge being gradually softened and blended with the sky by dabbing. When the leather becomes charged with paint, it is moved, so as to bring a clean piece into use. Fleecy cirrhus clouds may be done with the stump, using it as a dabber, so as to disturb some of the paint, and remove the same in some places. Long thin streaks of white clouds are produced by using the stump without any covering, tapping gently over the sky, so as to remove the color, leaving irregular lines, which may afterwards be softened by dabbing with the leather. In tinting skies it is usual to color temporarily over objects projecting into the sky, such as church steeples, roofs, etc., and then remove the paint after with the wedge stump. Darker clouds are put in with a brush after the dabbed tint is dry, but as this is much more difficult the beginner is advised to leave this till more proficient. Moonlight scenes are produced by making the blue much deeper, by the addition of lampblack or burnt umber, a trace of gold size being added to the color to assist in dabbing deep tints. The above directions apply solely to oil colors. Water colors and the aniline dyes are extremely unsatisfactory and more difficult to manage, the latter, too, not being absolutely permanent, instructions for these are hardly worth giving.

EDITORIAL NOTES.

The next issue of The Photographic Times will be the double Convention Number. We have already mentioned some of the principal features which will characterize this number, and we prefer not to particularize further, but we think it will please our friends. The price of the number will be twenty-five cents, but our regular subscribers will, of course, receive it without extra charge.

The publishers of "The Photographic Times Annual," having received large foreign orders for the 1892 issue, which are conditioned upon shipments being made several weeks in advance of the usual time, the editors are compelled to close the volume earlier than anticipated. Already nearly one-half of the book is in the printers' hands, and everything must be in type by August 22d. For fear, therefore, that the articles of some of our friends might arrive too late for publication (as we specified September 1st in our previous invitation), we express the hope that all may be able to send in an article at an early date, so that we shall be sure to have all represented in the book.

We have been asked to give our readers a little more definite idea as to the pictures required for "The Photographic Times Annual" for 1892, especially the photographs desired to illustrate some poem by an American author. Let it be understood, then, first, that we can use but one such illustration in "The Annual," and that the illustration selected will be the best one, of course, in the opinions of the editors, of all which are sent in. One or two of the others—indeed, as many as are worthy—will be used in The Photographic Times, if the author so desires.

It will be no little honor, therefore, to be the author of the illustration which is selected for and reproduced in "The Annual" from all which are sent in. An author's copy of the edition *de luxe*, bearing the name of the winner in this friendly contest will be a tangible token of success.

Any poem by an American poet may be chosen for illustration. We suggest a few which occurs to us while writing, as suitable ones for the purpose: Longfellow's "Courtship of Miles Standish," and "The Hanging of the Crane;" Whittier's "Snow-bound," or "My Playmate;" Lowell's "The Vision of Sir Launfal;" Holmes' "Dorothy Q," and many other poems of these and other poets in which the human interest is keen, and which could be best illustrated by the human figure or figures. Every one has his favorite poem. Let the favorite be selected.

Edith: Here is my new photograph. Do you think it does justice?

Eva: I'm afraid it must be confessed that it does.—*N. Y. World.*

PRELIMINARY, SECONDARY, AND SUPPLEMENTAL LIGHTING.

[Read before the Philadelphia Photographic Society, by J. F. Sachse.]

THE following interesting paper is a translation from Dr. J. M. Eder's "New Exhaustive Handbook of Photography" (Part 2, Vol. I, pp. 313–320). The subject will, without doubt, be a revelation to the professional and amateur who know nothing beyond the commercial dry plate of the present day. In days gone by the proceeding was technically known as "flashing." Our object in reproducing the article in its entirety is a two-fold one: first, to call the attention of our readers to the exhaustive nature of Dr. Eder's labors; and secondly, to recall the possibilities of this almost forgotten method of bringing out a negative which would otherwise be lost or valueless. In our own experience we have frequently resorted to this practice, and have rarely lost a plate. Whenever we find a plate undertimed or coming up too slowly, we simply pour off the developer and expose in the tray from two to ten seconds before the ruby glass then again pour on the developer. In extreme cases we have repeated the operation as often as four times, and almost always with satisfactory results. Again, when we had reason to believe beforehand that we were undertimed, an exposure of two-thirds seconds in front of the ruby light before development proved of service. The former plan, however, is by far the safest.

It is a proceeding, however, which requires care and judgment, and should not be resorted to unless all other manipulations of the developing agents fail to be effective. Still, in our own practice, the method as stated has proved successful with at least three makes of dry plates of varying degrees of rapidity.—J. F. SACHSE.

(*a*) *In the Negative Process.*—If a daguerreotype plate, wet collodion, or gelatine dry plate, after a short exposition in the camera, is subjected to an exposure of several seconds over the whole surface in a weak, diffused light, a favorable result will be attained.

If the exposure in the camera was gauged so short that the development resulted in an imperfect image, this supplemental general lighting continues the first action of the light so far that it results in a substantially better or perfect picture.

This action was first noticed over forty years ago with daguerreotype plates. Becquerel credited this continued action especially to the red and yellow rays, and denominated them as *continuing rays* (rayons continuateurs); while to the green, blue, and violet rays he attributed the primary cause of the action, and called them *creative rays* (rayons excitateurs).

This view was, however, soon found to be erroneous, and Moser was one of the first who recognized the fact that all the rays can commence and complete the action; later it was even proved that in actual practice it was just the subdued rays of the violet end of the spectrum which were the most active.

In the photographic practice it has been repeatedly proposed to expose the plate in the camera for a shorter period than called for by ordinary conditions, and then subject the plate for a short time to a diffused light. This proceeding is called secondary lighting.

A similar effect is attained if the plate is subjected to an exposure of a weak, diffused light before being placed in the camera (preliminary lighting), or if weak, diffused light is introduced into the camera during exposure (supplemental lighting).

In all three cases a reduction of period of exposure in chief is gained, frequently, however, at the expense of the quality of the picture. The means therefore are manifold, and are described below.

As early as 1871 Schultz-Sellack declared that the "continuing" action of the light upon a weak image was not a peculiar phenomenon, but the result of the necessary primary action, which explanation contains the greatest probability.

I. *The Wet Collodion Process.*—The action of preliminary and secondary lighting upon the photographic wet collodion plates was discovered by Bazin in 1870. His plan was to introduce a red light on the plate either during, before, or after the exposition. This was done by aid of four openings in the front board of the camera, around the lens; these were protected with glass plates, coated with a solution of carmine in ammonia, which were placed in front of a piece of brown glass.

The opening or closing of the lens achieved the same effect upon the four supplemental apparatus.

The same effect was obtained when the plate was exposed to a red light, a second either before or after exposure.

Carey Lea, in landscape photography, caused the red light to strike the plate only where the sky did not reach. His plan was to secure a red medium (carmine-stained paper) on the upper part of the camera, so as to cause the darker portions, foliage, etc. (but not the sky), to be strengthened by the red light and come out stronger in detail. When the foliage was brightly illuminated the red medium was unnecessary.

Newton applied an opening in the first board of the camera, 2 x 5 inches ; this was covered with a green glass, so that the plate was flooded with the weak green light during the exposure. This is said to have reduced the time of exposure from twenty to five seconds.

Newton, however, concluded that the best and safest plan was to leave the plate in the camera, and then give a secondary exposure by taking a green, red, black, or gray medium in front of the lens, and thus reflect light upon the plate.

Others again exposed the wet plates one-third to one-fourth of the usual time ; these introduced a piece of yellow glass in place of the dark slide, and subjected the plate to an exposure of ninety seconds in diffused daylight (Gaenslin).

Colored papers (blue, green, brown) were also used for the same purpose, in front of the open lens immediately after the exposure (Krüger).

In the year 1877, the secondary lighting, by means of violet light, was recommended. Scotellari made an opening in the cap of the lens; this he covered with aniline violet. This opening was opened or closed at will by a rotary disk. The plan was to expose with open lens, as usual, only much shorter, then put on the cap and turn on the violet light to complete the exposure. This process reduced the time from fifteen to seven seconds; this was exclusive of the supplemental lighting of two seconds.

Gillard recommended these colored diaphrams not only for a reduction of the time of exposure, but on account of the peculiar mezzo-tint effects. He used diaphrams made of gelatine sheets, which were colored violet or dark green.

Frequently the preliminary or secondary lighting was made by a white light. Werge used two thickness of tissue paper, giving four seconds.

Haugk suggested to expose a trifle less than half the usual time, then for a few seconds (say one-fifth of the usual time) to hold a piece of ground-glass before the lens, and then cap.

Melchoin in portraiture exposed his wet collodion plates to a diffused light for two seconds by holding a ground-glass in front of the lens, and then made a normal exposure of eight seconds, the result being a plate equal to an exposure of fifteen seconds without any preliminary lighting.

Foxlee also was a strong advocate in favor of supplemental lighting with diffused white light.

It was further recommended to have an opening in the cap, covered with opal glass, this to be two-thirds the diameter of the lens; the preliminary lighting to be one-seventh of the normal, with the result of reducing the actual time of exposure from twenty-four to fourteen seconds.

Richard closed the opening in the cap with a thin piece of tissue paper. The supplemental lighting should not exceed three-fifths of the normal time.

Wyler preferred to make the preliminary or supplemental lighting by candle-light in the dark room, as he had more control over the exposure than in the camera. His plan was to expose the wet plates for ten seconds to the candle-light.

Chapman subjected his astronomical plates to the influence of lamplight before he started development. This was also recommended by Worthley.

With under-exposed wet collodion plates Prümm found that the most practical supplemental exposure was to flood the plate with a yellow light in the dark room.

It is requisite with both fore and after exposures to take the greatest care that the light does not act too long, as this results in fog; while too short an action shows no improvement whatever. For instance, where an exposure under yellow glass of ten to fifteen seconds in diffused daylight already causes fogs (wet collodion plates), a ruby glass with five to ten seconds under the same conditions gives perfect results, whereas a combination of the ruby and yellow glass, even with lighted exposure, gave no noticeable effect whatever.

These additional exposures, notwithstanding the occasional results obtained, can only be depended on as a makeshift to save an under-exposed plate, as in almost every case fog results. Further, properly exposed plates are always preferable.

Quidde preferred the subsequent exposure.

A considerable reduction of the light is necessary with all the nodalities of additional lighting, so that the proceeding can be controlled. Therefore, translucent mediums can only be used when violet or white light is used. When green or yellow disks are used, more transparent mediums are available, thanks to the fact that the colors admit but few of the active rays. It will be noted that in all these processes the blue and violet rays are the most active, red carmine paper admitting even a few of these rays. Plain red or yellow glass proves ineffectual.

In this connection we will introduce the proposal made in 1850–51 to use white for photographic purposes. This idea originated with Löscherer, in Munich, who always operated with a camera the inside of which was white instead of black. He declared that thereby the action of the light was greatly increased.

Immediately after the publication of this state-

ment Blanquard-Everard stated that he obtained pictures in shorter time, when the interior of the camera was white instead of the usual black. This was substantiated by Kilburn, but denied by Claudet, or at least restricted to such cases where the outer light was not strong enough to form a strong image. Notwithstanding these experiments, they were again brought up by Blair twenty years later, but he soon returned to the dark camera and a preliminary exposure under red light.

Günther, in Hanover, 1855, suggested a modification in which he advised a blue lilac color in place of black

As a matter of fact, some photographers (Bellac and others) actually reduced the time of exposure with similar apparatus.

In the resulting discussion, in which Horn was especially active, it was soon shown that the reduction of time was at the expense of the picture, as the negatives were always flat. As a matter of fact, neither the quantity nor intensity of light within the camera is under any control; and even if, in some exceptional cases, the requisite measure of supplementary lighting is attained, in the great majority of cases it results in failure.

Consequently this expedient is practically useless; it is far more unreliable than the previous processes.

Carey Lea condemned the white and red interiors of the camera. Especially with a strong light (landscapes, etc.), the bright high lights would spoil the whole view, and result in fog and flatness.

De Constant, who again investigated the matter in 1870, found that an entire white camera resulted in a flat picture, little relief, and a confused appearance, as if the plate had been wiped over.

If the top and bottom of the camera were black and the sides white, the resulting picture combined sharpness with softness and relief, especially on the part towards the black sides. If the bottom of the camera were black, it added to the clearness of the face. If the top of the camera were dark, the clothing was clearer.

Consequently, as the face in relation to the drapery usually has too much light, better results were obtained when the top and sides were white and the bottom black.

As will be seen from all the above suggestions, no precise method has been evolved which could be adopted in regular practice.

II. *Primary and Secondary Lighting of Gelatine (Bromide of Silver) Dry Plates.*—Gelatine dry plates may also be improved during development if the necessary caution is used. It is, perhaps, superflous to remark that with the greater sensitiveness of the gelatine dry plate it is much more difficult to gauge the correct time for supplemental lighting than with the wet collodion plate, and the difficulty of preventing fog is greatly enhanced.

With extra rapid dry plates the period of the primary action is so exceedingly short that even with a slight light-impression a developable image is obtainable, and even the shortest lighting causes a general reduction (fogging). On the contrary, on less sensitive, clear-working plates a marked effect is shown by additional lighting.

Candle-light can only be used for this purpose at a very great distance, or when greatly weakened. According to Eder, candle-light worked better when thrown through a ruby glass. His experiments showed that a slow dry plate of 15 Warnecke, after being exposed from two to six minutes immediately in front of a ruby lamp (candle-flame), the sensibility was raised to 19–20 Warnecke Sensitometer, which was equal to a plate three times as sensitive.

E. Himly, in Berlin, patented a so-called (Hilfsbelichter) auxiliary exposer, which introduced diffused light into the camera (D. R. patent 38,684, August 6, 1886); *vide* "Eder's Year Book," 1889, p. 87

Preliminary lighting with dry plates of high sensibility is partly unnecessary, partly dangerous, and therefore is not advisable in actual practice.

In all probability the same results obtained on gelatine dry plates, by auxiliary exposure, may be reached in a purely chemical manner without the action of light. A minimum reduction of silver bromide must be introduced. This takes place by extending the so-called ripening process. In fact, the continuation of the digestion of the emulsion leads to fogging, and otherwise it is exceedingly dangerous to the rapidity of the emulsion, when treated with reagents, which are apt to change the reduced bromide (sub-bromide) back to its normal condition.

J. M. Eder.

A Lady Printer.—The Boston *Transcript's* regular "Listener" knows of a young woman who put $2,000 in the bank last year, representing the clear profits of one year's work in printing photographs. The business is new and lucrative, and the work of women in this branch is pronounced superior to that of men.

Papers at the Convention of the P. A. of A., in Buffalo, will be read by John Carbutt, G. S. Hurd, E. Decker, J. M. Appleton, Miss Catherine Weed Barnes, E. P. King, B. Coolidge, G. Hanmer Croughton, G. D. Milburn and many others. The Convention promises to be a success in every way.

PHOTOGRAPHY IN GROTTOES AND CAVES.

(*Continued from page* 313, *and concluded.*)

Method of Procedure.—The first difficulty was to produce a sufficient amount of light, the quantity of powder generally used for portraiture being much too little for the purpose in hand. It was necessary, too, to find a suitable apparatus. Dr. Regnard kindly showed me, in operation, the magnesium signal lamp invented by him, and it is this lamp which I employed in the experiments referred to, after I had somewhat modified it to fulfill the conditions which I thought desirable.

The lamp burns alcohol in a circular wick, and in the annular space thus formed is placed the tube for projecting the magnesium powder into the surrounding flame. The other end of this tube is carried to the outside of the apparatus, and furnished with a small funnel, by the aid of which the charge of magnesium is inserted into the tube. After lighting the wick, which should be sufficiently raised to give a flame two or three inches in height, you charge the tube, remove the funnel, and fix in its place an India rubber tube attached to a bellows. Pressure upon this bellows brings about a complete and instantaneous combustion of the magnesium powder. Two grams of magnesium are sufficient to give a beautiful flame of nearly two yards in height, and, after several experiments, this is the charge of powder which I find best to use. The results are only perfect with the most rapid of plates, and with an energetic developer. I have succeeded well with the Lumiere plates (blue label), and with the preparation known as the "Perfect" developer of M. Mercier. I may add here that the ordinary pneumatic ball will not give sufficient propulsive power with this lamp; the bellows is indispensable.

If a tube of larger diameter be employed (say of one centimeter), you may project a charge of four grams of magnesium with each puff of the bellows, but the extremity of the tube where it meets the flame should be narrowed or choked to a slight extent. The lamp may be placed on the ground, but not directly in front of the camera, for fear of fogging the negative, but at one side, and at a distance of about two yards from the camera-stand. The lens used should be of the rapid type, and one which will cover well with open aperture. Nadar's detective lens gave me good results. The placing of the camera and the focusing are the chief difficulties of subterranean photography. The apparatus once on its stand, you turn it in the required direction, but you can distinguish nothing on the focusing screen by the feeble light of the lanterns, and the focusing glass is of no use. But if the parts to be photographed are accessible, two men furnished with lanterns may be placed at either side, and then the image of the lanterns can themselves be focused, forming the limit of view on either side of the focusing screen. It will also be a help if a graduated scale be fixed to the tail-board of the camera beforehand, so that the approximate focus can be obtained without viewing the image on the screen. Everything being ready, the plate is inserted and the lens is uncovered, the lanterns outside the field of view having no hurtful effect upon the plate; but any figures introduced should be posed before the cap of the lens is removed. By taking these precautions one is certain to obtain results quite as good as if full daylight had been available.

M. J. Vallot.

THE OLD ROME AND THE NEW.

Mr. W. J. Stillman, in a paper on "The Old Rome and the New," in the July *Atlantic*, writes thus of the Rome of to-day:

That phase of Rome is gone forever—gone as surely as the simplicity and stern morality of the republic, the splendor of the empire, or the moral authority of the papal rule. Rome can no more be the home of art again than it can be the seat of universal empire or the patrimony of St. Peter. What has come is not so clear. The Romans of to-day have none of the distinctive virtues of either preceding epoch, except military courage, which the Italians have never lacked, though they have not always been fortunate in the employment of it. Taste was never a characteristic of Rome at any age, but in the great days the Romans built well. This cannot be said now, and all that is most modern is most execrable; all that is oldest is most execrated and profaned. The new barbarians who, in the present dispensation, swoop down from cisalpine Gaul, reared in the civic ideals of Genoa and Turin, have no sympathy with the monumental records of Rome, and no conception of anything to replace them. The Rome of 1870 was dirty but dignified; inconvenient for people with modern tastes, but most comfortable for those who had adapted themselves to its mediæval ways. The Rome of 1890 is comfortable for nobody; the acres of new palaces that were to be are mainly huge, ugly tenement houses, stuccoed flimsies, abhorrent without and inhospitable within—a tasteless waste, where the highest virtue is fragility and the noblest

destiny demolition. Of the delightful gardens* which used to exist within the circuit of the wall of Aurelianus, the only considerable fragment remaining is that of the English Embassy; and that too had been marked out in building lots, and has been saved only by the protest of her Majesty's government backed by the *Times* and the Italian archæological authorities. The famous Ludovisi gardens, the pride of Papal Rome, and amongst the most beautiful in Europe, have been built over, and the vengeful lover of Old Rome sees with a malignant satisfaction the long rows of untenanted windows of the huge apartment houses of the quarter over whose portals, newest in stucco and whitewash, he reads the last remnant of the language of the Romans, *Est locanda*. The Ludovisi gardens were offered to the municipality for $600,000, and refused, while it spent $740,000 in the purchase and demolition of a single palace on the Corso, to make a vacant space less than the hundredth part of the gardens. The transformation of Rome during the past twenty years is unique in the history of civilization for barbarism, extravagance, and corruption; never since the world began was so much money spent to do so much evil.

But Rome survives it, as it has survived the wrecking of the Goths, the Vandals, the Constable de Bourbon; survives even the Barbari and the Barberini. The Campagna still undulates into distance, if somewhat encroached on near the walls, and the arches of the Claudian aqueduct still measure off the space with their gigantic stride; the Appian Way is not made a modern cemetery, and there is left material for the artist who has the courage to return; Aricia, Nemi, Tivoli, and the far-off Olevano remain unchanged. The papal city has been comparatively little altered by the expropriations except along the Tiber, and nobody need go to the new quarter who does not choose so to do. Life is dear, too dear for the cosmopolitan artist folk who used to make one of the principal attractions of the city to westerners, and with very few notable exceptions they are succeeded by modern Italians, of whose art little is to be said. There is old Giovanni Costa, like Titian, outliving the school of poetic landscape, and generously teaching its traditions to such as will learn them; the Academy of France is still presided over by the veteran Hébert, the last of the school of healthy religious thought in painting—that to which services were not enough, and who were more troubled as to what they should paint than how they should paint it; but neither the one nor the other has much influence on the younger men. There is still the Café Greco where it was in the day of Salvator Rosa; but men go to it only as to a reliquary, to see the place where once all the artists of Rome used to meet along with poets and the minor brood of the Muses, and it is hardly known to the general visitor. Details disappear, and the eternal city looms above them like Mont Blanc over the little intervening hills when seen from a distance, or like St. Peter's from the Campagna, and will do so when the present system is in ruins and ivy grows over the new quarter. All these crudities will disappear; this pinchbeck Paris is only another illusion which time will dissipate, and Rome will be again what it has always been from its republican days, even though the new republic comes and the Papacy departs, a center of attraction to a spiritual cosmopolitan population, never a center of trade or business; and the people who know it are not those who are born in it, but those who are born to it and its liberties of thought.

*A charming picture of "An Old Roman Garden," by Mr. Stillman, will be reproduced in "The American Annual" for 1892.

A SIMPLE PRINTING PROCESS.

SOME recent experiments of the writer in the reproduction of leaves, ferns, etc., by a simple printing process—neither camera or plates being required—have given such pretty results that the details of the process, although by no means new may be of interest to some of the readers of THE TIMES.

A printing frame of suitable size is provided with a piece of plain glass, in place of the negative ordinarily required. The frame having been placed face down, and the back taken out and glass placed in position, the *green* leaves, ferns, etc. (which may be of any variety *if not too opaque*), are arranged tastefully on the glass, care being taken that they do not overlap each other. A sheet of silvered or ferro prussiate paper is now laid carefully over the leaves, and the back having been replaced, the frame is carried into the sunlight and printed—in the case of ferro prussiate paper, from ten to twenty minutes; in the case of silvered paper, from one-half to two-thirds that time. The results, when the prints have been washed or toned and fixed, are surprising, the delicate tracings of the fibers of the leaf, together with its general form, being faithfully reproduced. As the printing frame cannot well be opened during printing without danger of the leaves sliding about, the duration of the printing must be determined by timing. There is hardly a choice between the "blue" and silvered paper for this kind of work, both giving so good results. A sheet of plain glass clamped

down on a board on which has been placed five or ten sheets of paper as a cushion, will answer very well in place of a printing frame for these reproductions. To those preparing their own ferro prussiate paper, I would say, keep the solutions of red prussiate of potash and ammonia citrate of iron in separate bottles, and combine in small quantity sufficient to coat the paper required for the day from time to time. The results are much better than when the solutions are mixed and kept for any length of time, and the paper prints much quicker.

C. L. Woolley.

Correspondence.

A DENIAL.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: It has been reported to me that I have written various articles under the *nom de plume* of "The Kicker." Will you kindly publish for me a positive denial, as the report is entirely false, and without any foundation whatever? I have never written under any other name than that of Yours fraternally,

S. P. Wells.

THE BAUSCH & LOMB OPTICAL CO.'S PRIZE CONTEST.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Since we last wrote you inclosing circular of prize contest inaugurated by us, we have received from forty of the most prosperous amateur societies responses expressing their willingness to participate in this contest, and from nearly each one we learn that the matter is taken up with much interest and enthusiasm by the individual members, and we are complimented on inaugurating this prize contest, which, as some have expressed, is creditable in the way of enabling each participant to become familiar with American product in the way of lens and shutter. The success of this movement is absolutely assuaed. The lenses and shutters with which the competing negatives are to be made have now been sent to every society that has entered the contest and the matter is now fairly under way. Yours truly,

Bausch & Lomb Optical Co.

ROCHESTER, N. Y., June. *W. Drescher.*

A New Hand Camera has been devised by M. Lumière, of Lyons, for taking a series of photographs in quick succession. The framed plates move in grooves at the back of the camera, being projected forward into position by a spiral spring, as each one, after receiving its image, is released by a bolt and falls down into the bottom of the camera, a counter outside indicating the number of plates used.

Notes and News.

Professor Charles Ehrmann has gone to Chautauqua to superintend the improvements which will be made there in the Summer School of Photography's headquarters, previous to opening the summer course of study on the Assembly Grounds.

At Bay View, Mich., every season a camera club is organized by the many amateurs there, and any who would like to learn amateur photography are invited to join. The club is under the direction of Mr. E. C. Berryman, the Assembly photographer, who takes the members into his studio for a course of daily practical instruction, and, besides, a portion of the day is spent with them in field work. In this way the members learn from an intelligent artist the various processes, and many valued hints in taking and making good pictures.

Photographer A. Holler, of Broadway and Vernon Avenue, is evidently thriving on the "German Heights." He was on Broadway yesterday driving his recently purchased horse for the first time. The horse is a bay beauty, and drew a new-fashioned "box" cart, in which were seated the proprietor and his son. Quite a change from a score of years ago, when over the unpretentious gallery at the corner of Ewen and Meserole Streets there floated the sign "One Dollar a Dozen."—*Brooklyn Standard Union.*

August T. Hicks, a photographer, forty years old and married, jumped from the second-story window of his home, No. 105 Third Avenue, through the air shaft into the cellar with suicidal intent. He sustained a compound fracture of the right leg, and was removed to the Presbyterian Hospital, a prisoner. Hicks was formerly employed by his mother, who kept a photograph gallery on Third Avenue. She gave up the business recently, and for the last three weeks he has been out of work. For several years he has at times acted strangely.—*N. Y. Post.*

Suggestions as to Photographs.—There is no real satisfaction in a photographic portrait. At the best it catches only one expression out of the ever-changing tones that make the face of one for whom we care charming. Why should it not be possible to accomplish a good result by taking a composite photograph of one person—that is, by photographing that person repeatedly in the same pose—when he is grave and when gay; when tired and when fresh as a lark; when meditative and when alert. Then take the result of all and see what manner of man we should have. It would at least be an interesting experiment.—*Free Press.*

Photographing the Feet.—An ingenious photographer has devised a screen behind which ladies may be photographed with dummy feet of the most charming proportions peeping from below, so as to look as if they belonged to the sitter, whose own pedal extremities may be unsatistory in size and shape.

Triplets Photographed.—Photographer A. White took a picture of three persons, Mrs. Margaret Applegate of Eatontown, Albert White of Port Monmouth, and John H. White of Ohio. They were triplets, seventy-two years old.

Lady Brooke, whose husband Dame Rumor credits with an intention of seeking a divorce, was married ten years ago. Her photographs, representing her in several different poses and costumes, are on sale in hundreds of London shops. It is said that the Prince of Wales designated her as the prettiest woman in England several years ago.

A Portrait of Washington.—At a recent sale in a country mansion in the Isle of Man there were several oil paintings included in the catalogue which did not contain any indications that they were of particular value. Of five among them purchased by a dealer in art, one was discovered to be a full-length portrait of Washington, by Stuart, to whom Washington sat for three portraits. One turned out to be by P. Wouvermans, and the others were by painters of the Dutch school. The collection was formed early in this century by an American gentleman who resided on the island for some time.

A Portrait of Cecilius Calvert.—The Maryland Historical Society has just received from London a highly prized photograph, 10 x 12 inches, of the only known original oil painting of Cecilius Calvert, second Lord Baltimore. The painting was catalogued at the London Exhibition of the Royal Academy last winter. It is from the collection of Sir William Eden, who is a relative of Robert Eden, the last Colonial Governor of Maryland, Governor Robert Eden having married Caroline, the youngest daughter of Charles Calvert, fifth Lord Baltimore. the family connection is unbroken, and there is no doubt of the originality of the painting.

Portrait of M. Gladstone.—Gladstone's daughter, Mrs. Drew, declares that the best portrait of the Grand Old Man was one by T. McL. Hamilton. One secret of his success, the artist himself thinks, was the fact that his "sitter" was most of the time preoccupied. Mr. Hamilton says, in a note to the *Pall Mall Gazette*: "Mr. Gladstone was very busy at the time, and all that I desired was that he should go through his morning's work as usual, and be unconscious of my presence. The golden rule of science which is observed in the library at Hawarden is the ideal rule for work. It is very distracting to have to talk to one's sitter, or even to be talked to by him. So Mr. Gladstone did his work and I did mine."

Too Decollete.—Emperor William has just given the world another manifestation of unfilial behavior. A short time ago the rector of his Parish of Kochern, on the Rhine, was sentenced to a term of imprisonment for refusing to administer the sacraments to a dying man until a photograph of the Empress Frederick, the young monarch's mother, was removed from the bedroom. His pretext was that the empress was in a dress that was too décolleté and showed too much of the imperial and somewhat voluminous bust. On the matter being brought to the Emperor's notice, he demanded to see the portrait of his mother which had given offence to the priest. As soon as it was placed before him, he gave orders for the immediate liberation of the prisoner.—*San Francisco Argonaut.*

Miss Frances Benjamin Johnson, of Washington, who is the single women member of the capital city's Camera Club, was sent as a representative delegate to the convention of amateur photographers lately held in New York. Unlike the average feminine enthusiast in the pretty art, Miss Johnson has in a measure found professional recognition for her excellent work with the camera. Some years ago she studied art in Julian's popular studio, but finding photographic processes much more to her mind than paint-brushes and pencils, she studied photography, and now, though by no means dependent on the money remuneration for her labor, she fills large orders from the Associated Press and the illustrated New York magazines for her excellent pictures. During the summer months Miss Johnson will go an extended Western tour, partly on pleasure and somewhat on photographic duty bent.—*The Illustrated American.*

Photographs in Tea-Cups.—One of London's society men, a clever artist, is said to have a set of cups, for afternoon tea, which a lot of his girl friends recently gave him. Each one placed upon the inside of the cup, a photograph of herself which, when it is full of tea, can not be seen. His studio is so pretty, his afternoon tea so delightful, that his guests frequently want to prolong tea-sipping indefinitely. In despair, he complained to these girls, whose active hands soon solved the problem by giving him the cups referred to. Each guest was told his or her cup contained the face of a friend. Of course each guest was anxious to know whose face, and slowly sipping would only reveal it by degrees. That day, only five minutes were spent in tea-drinking, and, as the clever young artist knew each man well and was the confidant of every girl, he was voted to be the best fortune-teller in all London.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, June 10th, 1891, the President, Mr. John G. Bullock, in the chair.

The Board of Directors reported the election of the following active members: Howard Laurence Roberts, Thomas Lynch Montgomery and Benjamin Sharp. They also announced that a plan was under consideration, details of which would be given later, for a competitive exhibition to be held during the coming fall or winter, of lantern slides from hand-camera negatives representing the summer work of members of the society.

Mr. J. F. Sachse read a paper on "The Preliminary, Secondary, and Supplemental Lighting of the Photographic Plate," by Dr. Eder. (See page 320.)

At the conclusion of the reading, Mr. Carbutt inquired on what date the first colored diaphragm was used in the lens.

Mr. Sachse said he did not know the date, but it was first used by Guillard.

Mr. Carbutt stated that he had used a colored diaphragm in 1858 or 1859. He was then working in a small gallery in a small way, in an interior town in Indiana. They were using the wet collodion process at that time. He used a blue diaphragm, and obtaimed a sharp picture in about

the same time that would have been required by a very much larger aperture.

Mr. Bell said that in 1872 the photographer of the Treasury Department and himself instituted a series of experiments in preliminary lighting. The plate was exposed from three to five seconds, with a red glass in front of the lens, and then exposed on the sitter. The result in all cases was less valuable than if they had not exposed to the red light at all, but had given it proper time. It might be useful where a man's chemicals were in a very insensitive condition, as it would help him to make a much better picture than he could otherwise obtain. He had also used the blue light, by apertures in front of the box, and again in the cap, and after exposure swung in front of a white screen for an instant. At that time he had slow light, and this method helped him very much to get certain pictures, such as children. Still, the results were never very good—not as perfect as would have been the case had he been able to expose the proper time.

The Chairman inquired which color gave the best results, the blue or the red?

Mr. Bell replied that in the preliminary lighting he found the red glass was the best.

Mr. Cheyney said that it seemed to him they all used this preliminary, etc., lighting. While it was not intentional, they all did exactly what Mr. Sachse had described. In the first place, they took out their plates in a dark room lighted by red light, dusted them, and inserted them in the holders. That was the preliminary lighting. Then they exposed the plates. That was the secondary stage. Next they developed under the red light; and if the development did not proceed fast enough they held the plate up close to the red light to see what was the matter. That was the supplemental lighting. Hence, they all did what Mr. Sachse had described.

In reply to a question from the Chairman, Mr. Sachse said the red light employed was merely the ordinary red light of the lantern.

The Chairman asked where, then, lay the difference between this red light and that used in ordinary development.

Mr. Sachse stated that it differed in this respect, that he personally always filled his holders in the dark. Then, after exposure, he never subjected the plates directly to the red light of the developing room, but put them in the pan in the shadow, and, after a few minutes, held them to the red light to see if the image had appeared. He was always very careful to keep away where the exposure was normal.

Mr. McCollin said he recollected one of the members, Mr. Browne, in the old collodion-emulsion days, brought to him some undeveloped plates, and they were made into fairly good plates by means of candle-light. They were developed in a yellow glass dish.

Mr. Cheyney explained the test he made of his lantern. He exposed a 26 Seeds plate before the lantern for five minutes with a figure cut from cardboard in front of it, and could get no image. The plate was perfectly clear; so he came to the conclusion that he was quite safe in taking his time in development.

Mr. Sachse remarked that he found a difference in the makes of plates. In one make of plates exposure to the lantern invariably resulted in fog. Two other makes he was in the habit of using always came out clear.

The Secretary inquired if this was really an improvement, or only a slight veiling which, as Mr. Carbutt said, made certain details apparent or softened down the hardness of an under-exposed plate.

Mr. Sachse's experience had been that it did bring out detail. In speaking of the matter three years ago with a professional photographer, that gentleman attributed the improvement to pouring off the developer and leaving the plate exposed to the action of the air. He contended the ruby light had nothing to do with it, and said that when he found under-exposed plates he poured off the developer, exposed to the air, and then put them in the developer again.

The Secretary said it seemed to him that plates grew in detail while being examined, as though the air, coming in contact with the plate, might have that effect.

Mr. Walmsley supposed every one working with a developer had experienced that. His own developer he kept on the plate only long enough to bring out the detail slightly; he then poured it off, put a cover over it, and it would bring out a density in a few minutes so dark that they could not see through it.

Mr. Ives stated that more density would be developed where the air came in contact with the plate than where it was kept from it.

Mr. Cheyney mentioned an instance where he had allowed the negative to rest on the edge of the dish, and the part exposed to the air was better developed than the portion immersed in the developer. In fixing, also, he had found that where the process was slow it was quickened by taking the plate out and letting it stand on edge a little while before returning to the bath. There seemed to be some oxidizing action of the air that helped development and fixing along.

Mr. Fox said that in the collodion-emulsion days, when they worked with yellow light, it was a common dodge to pour the developer off the plate and let it stand for some time. The negative would come up very well in that way; it brought the detail out rapidly.

Mr. Sterling said it had been suggested that part of the action or the benefit brought about by breathing on the plate was due to the added heat; but he wished to ask for some information. What Mr. Cheyney had said about his developing lamp was at variance with his experience. He had never handled any plate that he could expose within five inches of any lamp he had ever seen without developing fog. He thought it would be interesting to all present if Mr. Cheyney would tell what lamp and what colored medium he used.

Mr. Cheyney stated that his lamp was a Carbutt's Multum in Parvo. It had a face of ruby-colored, hammered glass in front of it. This he had the misfortune to break, so he took two pieces of Carbutt's yellow paper, and pasted a piece on one side and one on the other, and he could stand a Seeds 26 plate in front of it, with a figure against it, for five minutes, and nothing but clear glass could be gotten out of it.

Responding to a remark from Mr. Stirling, Mr. Cheyney said he was never more than eighteen inches or two feet away from the lantern, and he could see the details come up, and he had not very good eyes.

Mr. Stirling hinted that as Mr. Cheyney wore glasses he could probably see better than he (Mr. Stirling) could.

This Mr. Cheyney denied, and, continuing, said that when he desired to tell the density he always examined the plate by the clear, red glass at the door of the lantern.

Mr. Bell spoke in favor of the sodium core or

"Alladin" lamp used by Mr. Rau. He advocated plenty of light in order to distinguish the density of the plate.

Mr. Rau, in answer to a question, said the sodium core gave a very pale orange light.

Mr. Sachse inquired whether any of the members present had ever had experience with the white or colored camera interior.

Mr. Bell said that in the old daguerreotype times they had used something like that, but it was abandoned, mostly for the reasons given in Mr. Sachse's paper. The images obtained were made very indifferent.

Mr. Ives thought it would be of interest to the members to know that in the old wet-plate days a secret method was sold to photographers for $10, which consisted of a lighted wax match, to be held until burnt out—a very convenient way for supplemental lightning.

Adjourned.

Robert S. Redfield,
Secretary.

The Editorial Table.

No. 29 of "Alden's Manifold Cyclopedia" carries the reader from Perseverance to Pluperfect, with ample space devoted to the intervening subjects. It is, like its predecessors, fully illustrated, and, like them, it is printed on good paper in clear type. Its small cost puts this excellent cyclopedia within the reach of all, the price being only 65 cents per volume in half morocco. New York: John B. Alden.

A new monthly "artistic and literary journal of photochromie and art-reproductions," having the title *L'Heliochromie*, has just appeared in Paris, edited and published by Edouard Laussedat.

Number 2, for May, contains a reproduction of one of the Salon paintings, and also a color-plate of a Japanese fan.

The publication seems to be in the interest of Mr. Laussedat's establishment at Cloyes for phototypic and color printing, but it is quite interesting and well worth the small subscription price of 6 francs per year.

"Outing," for July, offers a tempting array of good things for all lovers of pure, wholesome literature and elegant, artistic work. "Beyond the Metropolis of the Mountains," by Ernest Ingersoll; "Rowing as a Recreation for Women," Charles Mellen; "The Lady in Rouge," W. E. P. French; "Boating Life on the Upper Thames," F. Campbell Moller, M.D.; "A Chapter in Lacrosse," Lionel Moses, Jr.; "Scientific Tennis Strokes," J. Parmly Paret; "With Rod and Line Through Ireland," T. Murphy; "Fishing Along the Pecos, New Mexico," John Carnifex; "Photographing Foliage," Ellerslie Wallace; "The Massachusetts Volunteer Militia," Captain D. M. Taylor; "Harry's Career at Yale," John Seymour Wood; "Hurdling," Malcolm W. Ford; "American Polo," Lawrence Timpson; "The Detroit Wheelmen," P. N. Jacobson; "American Cycling and its Founder," C. D. Pratt, and the usual editorials, records, poems, etc., complete one of the best numbers we have seen.

Charles Dudley Warner is described by a western newspaper as "Our American flash-light photographer of social fads." This is doubtless intended as a compliment. —*Hartford Post.*

Queries and Answers.

95 QUERY.—How can I prevent after-toning of a print in the wash water before fixing?

95 *Answer.*—A tolerably strong solution of common table salt, say of 10 or 15 P. C., will arrest after toning effectually, but you must wash the print in pure water before fixing.

96 CHARLES MYERS.—What difference, if any, is in the meaning of the words isochromatic and orthochromatic, when applied to certain plates, or photographic action?

96 *Answer.*—Isochromatic means of equal colors, orthochromatic of correct colors. Neither of these words is descriptive enough of what plates or methods thus named claim to be able to do. Isochromatic conveys surely the idea of reproducing all colors alike, blue being reproduced exactly as yellow would be, and from an orthochromatic plate might be expected a correct reproduction of natural colors. But plates named either way can not claim more than reproduction of color or tone *values*, their brightness as impressing the human eye. For these reasons both of these names are objectionable. The comprehensive words, "color sensitive" are certainly more descriptive of plate and method.

97 MARY O. M. is very much troubled with frills. She has tried several brands of plates, and observed every precaution she knows of, but the frills are still there.

97 *Answer.*—As a general thing American plates are free from this imaginary evil, nevertheless you should be very careful with them at this high temperature. Keep your dark room cool and well ventilated; use iced water for washing the plate; keep your chemicals cool; never use old hypo; do not develop in the afternoon; postpone the work to the early morning hours; and when nothing will help add a little saturated tannin solution to the developer, which of course will retard the process to some extent.

98 LOTTIE P. wants to know how to develop orthochromatic plates. She has tried pyro with soda, and with potash, hydroquinon and eikonogen, but with either of them the negatives are more or less fogged, and invariably of a pink color.

98 *Answer.*—Any of the developers tried should answer perfectly well. But you must not have your plate in too close proximity of your dark room lantern, of whatever color it might be. Orthochromatic plates are sensitive to colored-light rays, to yellow, green, orange, and to red to a limited degree, but if you expose a color-sensitive plate to light of these rays, they will naturally cause an effect. Develop by very much subdued light of your lantern. The color of the plate after development is due to the color sensitizer in the emulsion, erythrosin in all probability, and which can be removed by long continued washing in pure water, or readily so in alcohol.

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Studio Changes.

Au Sable, Mich. Mr. Arthur Venners succeeds Venners & Martyn.

Midland, Mich. Mr. E. C. Buehrmann has sold his gallery.

Business Notices.

CONVENTION NOTICE TO PHOTOGRAPHERS AND ARTISTS.—When you come to the Convention do not forget that we are only a few blocks from the Exhibition grounds, and that we will be pleased to show you our system and advantages in doing work for the trade. The Buffalo Dry Plate and Argentic Paper Co.'s Works are but a step from us, so you can call on them at the same time. In packing your valise, if you have anything in the line of prints, crayons, pastels, water colors, ink, oil, etc., that you intend having made, bring the negatives and a contact print from each, and we will make the enlargments in your presence, which will give you the opportunity to criticize. First come first served. Our office contains a full line of samples, so if you have not had any work done by us you can see the different grades and excellence of the work. Our motto is promptness and excellence, and we can show many letters which prove that it is being faithfully carried out.
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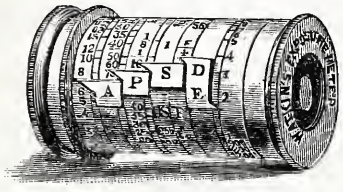


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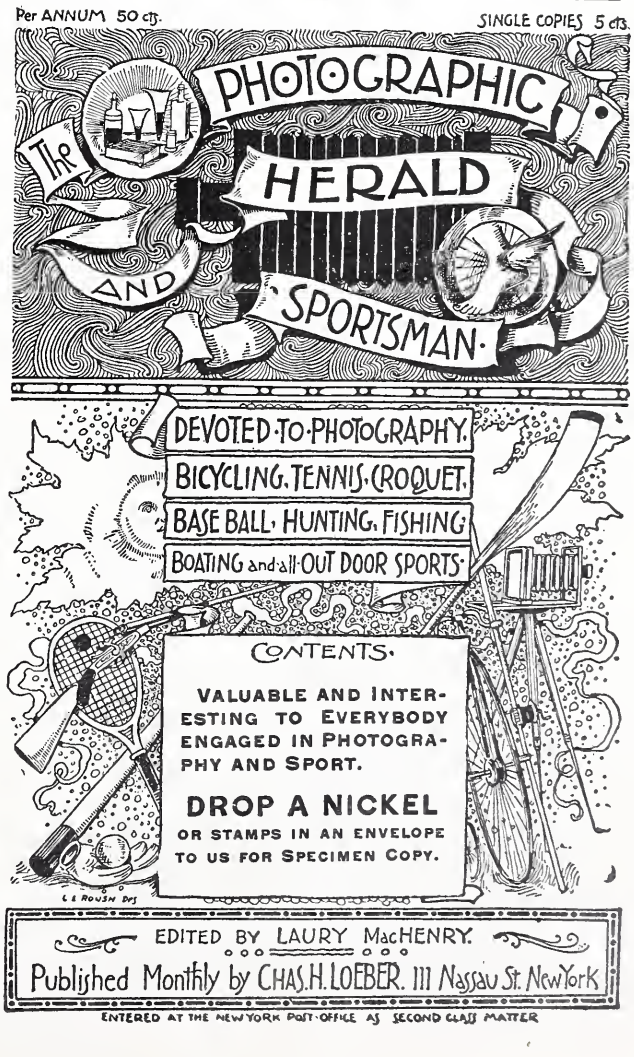
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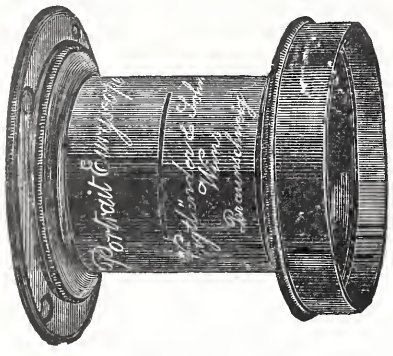
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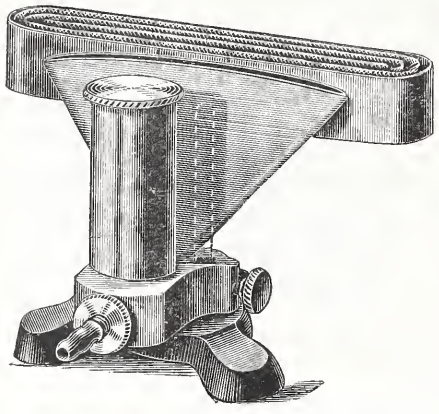
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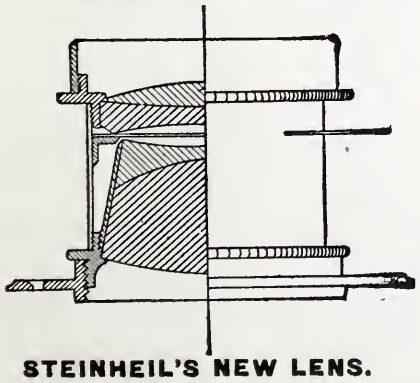
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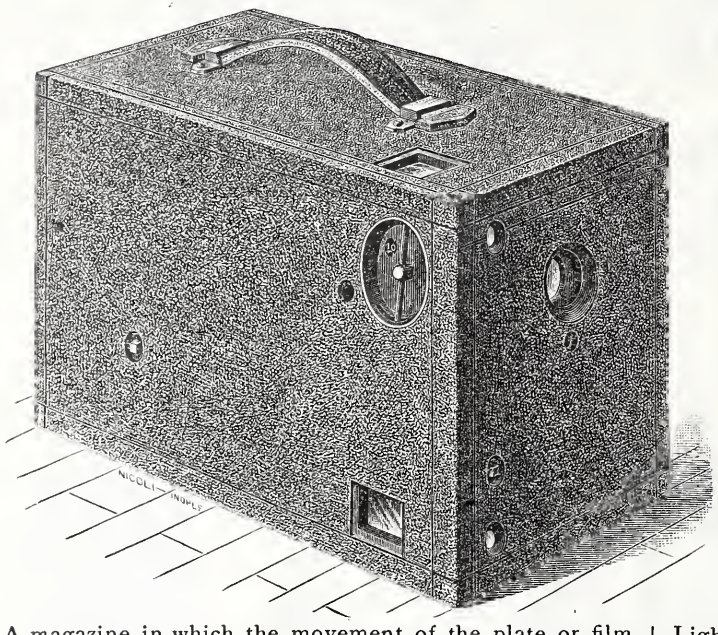
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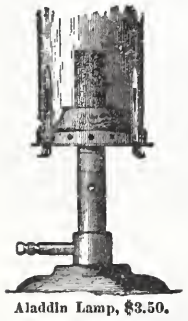
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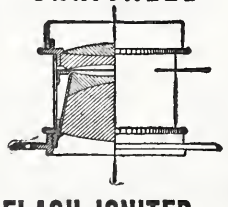
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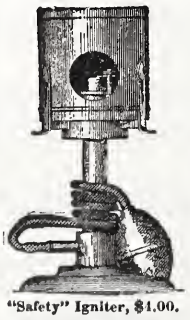
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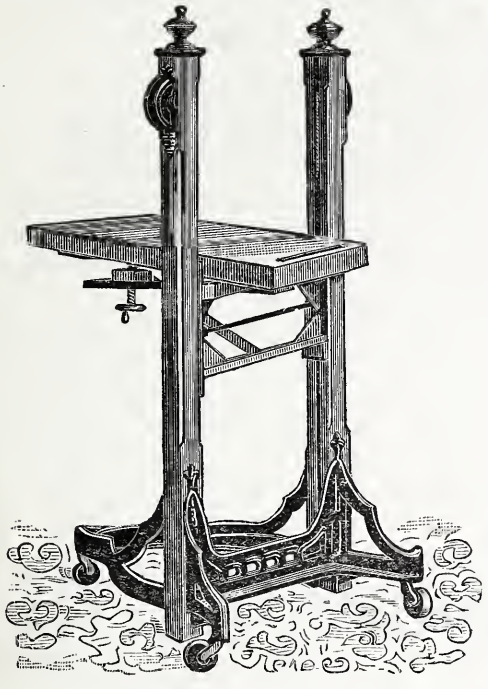
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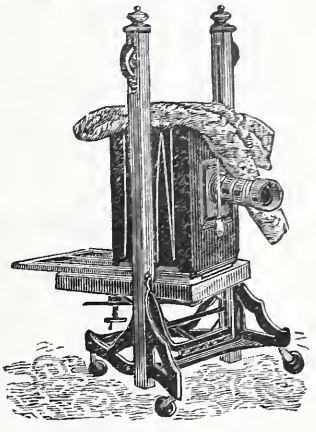
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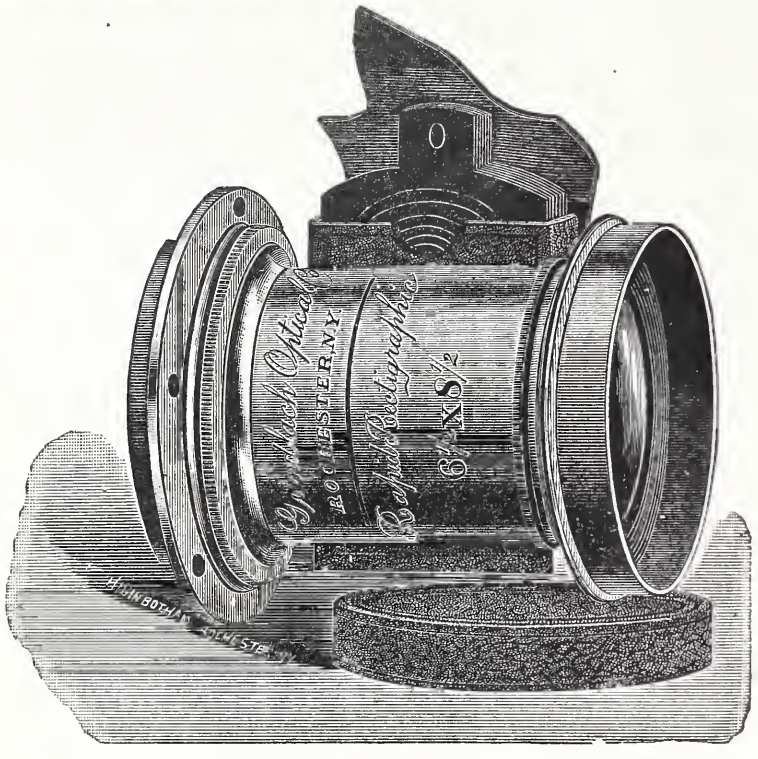
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These features will all be continued and improved, and new ones will be added. In the May number is commenced the publication of a series of portraits of the most noted of living American actors and actresses, which will be continued month by month, under the title of "Some Players," commencing with Mr. Edwin Booth and Mr. Lawrence Barrett.

The third of the series will be a portrait of Miss Julia Marlowe, as "Viola."

In the June number we shall begin another series, to be called "American Painters and their Work," which will consist of reproductions of their best and latest efforts, selected and approved of by them before publication. Each picture will be accompanied by a portrait of the artist, with his autograph.

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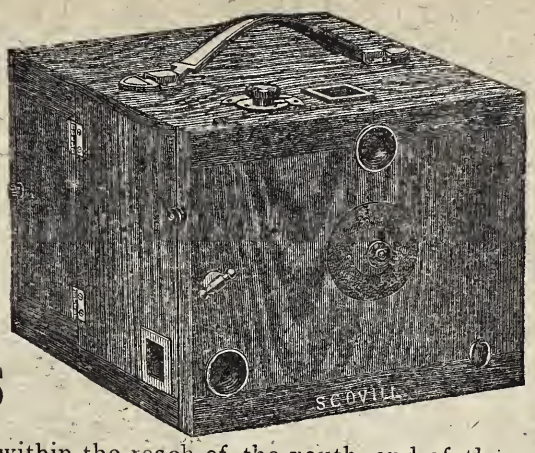
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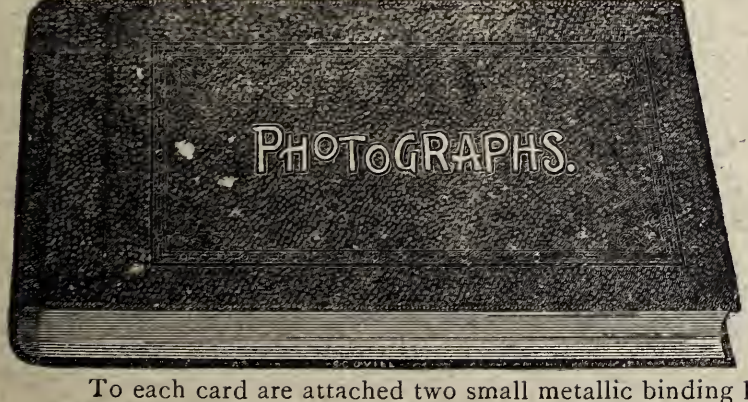
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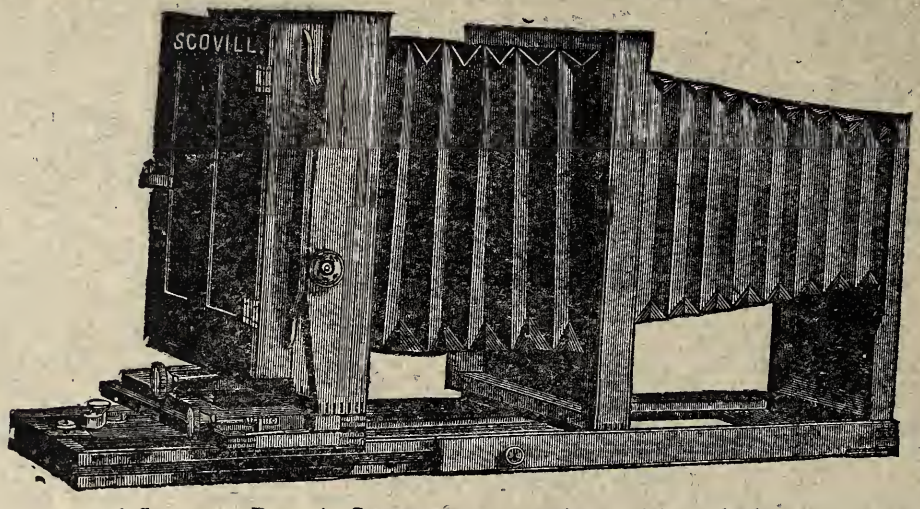
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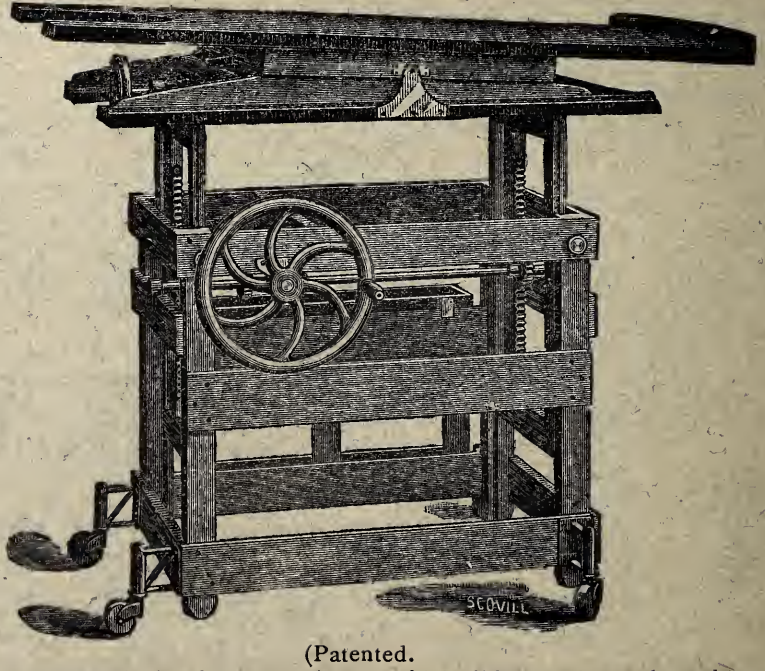


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6....	10x12 "	" " 36 "	48 00
7....	11x14 "	extension " 48 " and vertical shifting front.....	64 00
8....	12x15 "	" " 48 " do	72 00
9....	14x17 "	" " 60 " do	76 00
10....	16x20 "	" " 65 " do	88 00

No.	Size.	To cover plate.	With Double Swing-back.
11....	17x20 ins.,	extension platform 65 in. long and vertical shifting front.....	90 00
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Instead of the clumsy levers and racks, by which accurate adjustment of the platform was obtained in the older stands; the proper elevation and inclination are produced in the "Elite" stand by cog-wheel and snake screw, and the manipulation at one side by a wheel with handle, and within reach of the operator, so that he may adjust the height or inclination of this camera without taking his head from under the focusing cloth. By means of the wheel worked at the rear endof the platform, the horizontal position of the platform may be inclined upward or downward to a limit of 15 degrees. A great advantage from this movement, we observe, is that a true horizontal position—so difficult to obtain in the old camera stands—is, with these, an easy matter to effect. This is especially important to those who may use them for reproduction work. In the No, 2 size the platform is fifty-two inches long and twenty-five inches wide, and its length may be increased to seventy inches by an attachment which slides out forward, making it quite long enough for supporting a large copying camera. Then a semi-circular cut-out, to the rear end of the platform, is a convenience to the operator, who is thus enabled not only to stand closely up to the ground-glass, no matter how for the camera may have been pushed forward, but bending of the body is obviated, which is quite a necessity with all the older stands.

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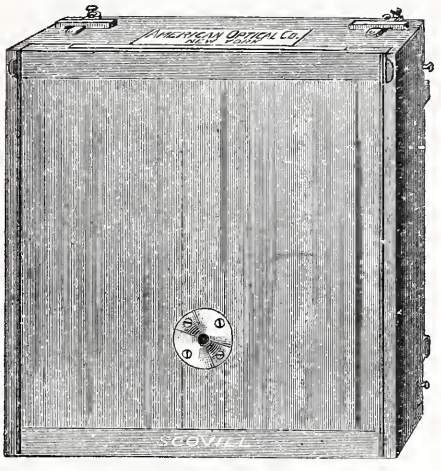
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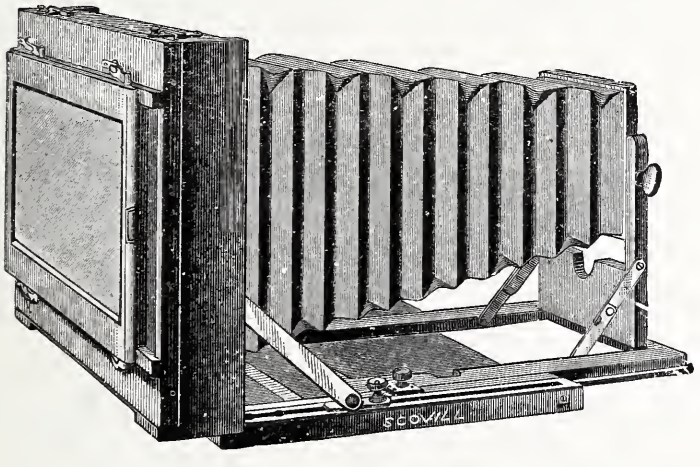
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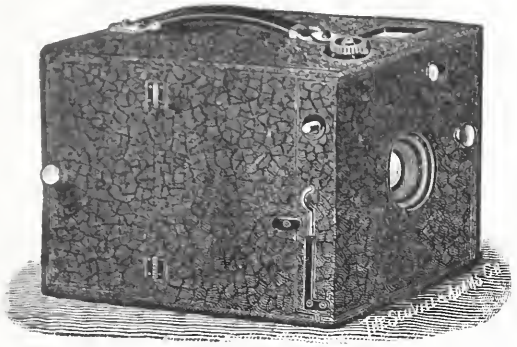
In order to convey an adequate idea of the lightness of these cameras, it is sufficient to say that the 5x8 size camera, with ground-glass in frame and holder, weighs only 3 lbs.

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When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

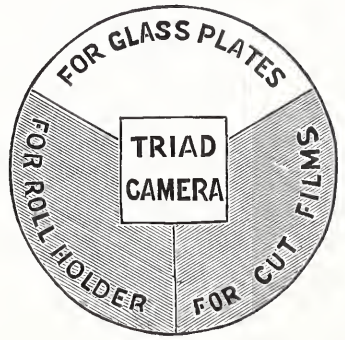
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day; that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

The TRIAD Camera is fitted with the latest improved Roll Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

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For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.



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5x7 Triad Camera, with Roll Holder, two Double Dry Plate Holders, or two Cut Film Holders, -	55 00	40 00
Extra 4x5 Triad Double Dry Plate Holders, each, - - -		1 25
" 5x7 " " " - - -		1 30

Holders for Cut Films, same prices as above.



Fraternally Yours

Geo. H. Hastings.



FAST FRIENDS.

SPECIMEN HALF-TONE PROCESS
BY
MOUND CITY ENGRAVING COMPANY,
304 N. THIRD STREET,
ST. LOUIS.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JULY 10, 1891. No. 512.

THE PRESIDENT OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

OUR frontispiece this week is an excellent portrait of Mr. George H. Hastings, President of the Photographers' Association of America. The negative was made in Mr. Hastings' own studio on Tremont Street, Boston, and is a fair example of the high grade of work habitually turned out at this establishment.

George H. Hastings was born in Irasburg, Vt., January 3, 1852, which makes him one of the youngest presidents the Association has ever had. Early in life young Hastings evinced a taste for artistic pursuits, beginning the study of photography at Lyndonville, Vt., when only seventeen years old. The following year he succeeded his employer, O. C. Bolton, in the photographic business.

In 1872 Mr. Hastings removed to St. Johnsbury, Vt., and there he bought out the old poet-photographer, F. B. Gage, remaining in St. Johnsbury until 1876. He then sold out this establishment, and, after working in different cities for some time, settled in Newton, Mass., in 1878. Here he conducted a very successful business for two years.

Mr. Hastings then commenced his Boston career, establishing the partnership of Ritz & Hastings, at Temple Place. At the end of four years he bought Mr. Ritz's interest in the partnership, and since that time has conducted this large establishment alone. In addition to his Boston establishment, Mr. Hastings owns a half interest in the summer studio of E. C. Dana, at Newport, R. I.

Mr. Hastings' reputation as an artistic photographer has steadily increased until now he enjoys as fine a patronage as any photographer in the city, and is classed in the very first rank of photographers, both in photographic circles and by the public generally.

It was not until recent years that Mr. Hastings exhibited examples of his work in the Annual Conventions of the Photographers' Association of America; but no sooner had he commenced to show his fine portraits than very conspicuous recognition was awarded them. At the Minneapolis Convention, in 1888, he was elected First Vice-President of the Association, and at Boston, the year following, was re-elected to the same high office. He was unanimously elected President last summer at Washington, and were it not for the unwritten law that no President shall succeed himself, Mr. Hastings would undoubtedly be a strong candidate for re-election for the highest office in the gift of the National Association.

Among the other prizes which Mr. Hastings has won by the excellence of his photographic work, is the Grand Prize, which was awarded to him at Washington last summer, for his collection of original Enoch Arden pictures.

Mr. Hastings' portrait indicates the kind of man he is—sunny in temperament and a genial companion. Few members of our fraternity have so many or so cordial friends.

As a presiding officer Mr. Hastings has yet to win his spurs, but those who know him best are confident that the Twelfth Annual Convention, under his presidency, will be as successful as any yet held by the Photographers' Association of America.

EDITORIAL NOTES.

OUR CONVENTION NUMBER.—We present our readers this week with the promised double Convention Number. We trust it will please them, and be found of especial value to those who attend the convention. The portrait of President Hastings, with the accompanying biographical sketch, the diagram of the Convention Hall with spaces marked, the information concerning the City of Buffalo where the convention will be held, and much other

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information pertaining to the convention itself, will make this number, we trust, an appropriate souvenir of this convention, as well as a valuable guide and handy reference to those in attendance. Most of the articles, by the foremost of American and foreign photographers and photographic writers, have been written especially for this number.

CANDIDATES FOR OFFICE IN P. A. OF A.—As usual we have received many inquiries as to the candidates for office in the Photographers' Association of America for the ensuing year, and, as usual, we can only give our readers the result of our observation and the indications we have received from various sources. Both the present vice-presidents, Messrs. S. L. Stein, of Milwaukee, and W. Stuber, of Louisville, Kentucky, have many friends who would like to see them promoted to the presidency. Mr. Barker, of Niagara Falls, has been proposed as a candidate by some and would probably receive many votes at the convention. Western photographers would like to see Mr. Jackson, of Denver, made president, especially if the next convention is held in the West, as seems likely. And, there are some other names which will probably be brought forward at the last moment.

PROPOSED LOCATIONS FOR THE CONVENTION NEXT YEAR.—As usual, also, there are many cities advocated for holding the next convention, though an extreme western city seems to have most adherents, mainly for the reason that the convention has been held in an eastern city for three years. Denver will undoubtedly receive a great many votes, and Kansas City will also be a strong candidate. Detroit always seems to be in favor, and will very likely be again brought forward as a desirable place for holding the convention. At any rate, it is highly probable that a western city will be chosen.

THE WORLD'S FAIR PHOTOGRAPHER.—We understand that Mr. C. D. Arnold, a well-known professional photographer, who has devoted himself mainly to architectural subjects, has been appointed by the Commissioners of the Columbian World's Fair to photograph the buildings in course of construction at the fair grounds in Chicago, and in general to record the progress made there from time to time, by the camera. We congratulate Mr. Arnold on receiving so honorable an appointment, and we also congratulate the World's Fair Commissioners in securing so skillful a photographer.

PHOTOGRAPHERS AT THE WORLD'S FAIR.—The appointment of Mr. Arnold as the official photographer at the Columbian World's Fair suggests the question as to who will receive the right to exclusively photograph and sell World's Fair pictures during the holding of the fair. We are inclined to believe that the best plan would be that which the managers of the Paris Exhibition adopted. Any one was permitted to photograph in the fair grounds at Paris who had paid a certain amount for the privilege. A different fee was charged, of course, professionals and amateurs. Professionals who sold their pictures again and thus made money by the operation were charged much more for the privilege of photographing than amateurs who photographed merely for pleasure. In this way a very large sum was raised, and every one had the same opportunity to photograph.

THE CONVENTION.

PROGRAMME OF THE BUFFALO CONVENTION.

JULY 14–17TH, INCLUSIVE.

FIRST DAY, MORNING SESSION, 9 A.M.

Calling Convention to order.
1st. Address of welcome by Mr. H. McMichael.
2d. Roll Call.
3d. Reading of the minutes of the last meeting.
4th. Report of Standing or other Committees.
5th. Selection of location for the next Convention.
6th. Appointment of Committee on Nominations.
7th. Appointment of Committee on Awards.
President's Annual Report.

SECOND DAY, MORNING SESSION, 9 A.M.

1st. Reading of Communications.
2d. Report of Committee on Nominations.
3d. Report of Special Committees.
4th. Unfinished Business.
5th. New Business.

Afternoon Session, 2.30 P.M.

1st. Posing and Lighting.
2d. Backgrounds and Accessories.
3d. Art Photography.
4th. Orthochromatic Photography.

Evening Session, 7.30 P.M.

Art Criticisms on Photography, illustrated by the aid of the Stereopticon.

Third Day, Morning Session, 9 A.M.

1st. Reading of Communications.
2d. Unfinished Business.
3d. New Business.
4th. Report of Committees.
5th. Election of Officers.

Afternoon Session, 2.30 P.M.

1st. Developing.
2d. Retouching.
3d. Dry Plate Photography.
4th. Bromide Printing.

Evening Session, 7.30 P.M.

Practical Flashlight Photography.

Demonstrations of several lamps and the merits of the same will be shown by throwing on the screen, with the aid of the Stereopticon, the results of the different exposures.

Fourth Day, Morning Session, 9 A.M.

1st. Reading Communications.
2d. Reports of Committees.
3d. Unfinished Business.
4th. New Business.
5th. Announcement of awards.
6th. Adjournment.

There will be an excursion to Niagara, on Saturday, A.M., July 18th, and due notice will be given during the Convention as to arrangements for the same.

The Hotel Rates.

The hotel rates as given to the members of the Association are as follows:

The Iroquois (headquarters), $3 per day and upwards.

The Broezel, $3 per day and upwards.

The Tifft, $2, $2.50 and $3, in accordance to the room and location. Two persons in a room $1.50 per day each. One double bed.

The Genesee, $3 per day and upwards.

Railroad Rates.

The Committee on Railroads have secured special rates of one and one-third fare for round trip, from all points to Buffalo.

Mr. M. C. Roach, G. E. P. A. of the New York Central, has made special efforts to accommodate the delegates from New York and vicinity. Express trains will leave the Grand Central Depot at 42d Street every day at 9.10 A.M., 6 and 7.30 P.M.

The rate going will be $9.25 from New York, but will be only $3.10 on the return trip, so that the round trip by this delightful route will cost but $12.35. Probably the main party of delegates from New York and the East will go by this line Monday evening, July 13th. If enough buy their tickets previous to that time, a special car, or even a special train, will be provided for the delegates. The trains return from Buffalo every evening at 6.20 and 7.30, arriving in New York the following morning at 7 and 7.30 o'clock respectively. We hope to accompany a goodly number of Eastern photographers from New York.

The tickets may be purchased at the Grand Central Depot, or at Mr. Roach's office, at 413 Broadway.

Obtain from your railroad ticket agent a certificate, which, when properly signed by the treasurer at the Convention, will allow the discount on the return trip.

There will be papers read at this Convention by J. Carbutt, G. L. Hurd, Catherine Weed Barnes, E. Decker, C. Hetherington, E. P. King, M. Ames, B. Coolidge, J. Nash, W. Hunt, J. M. Appleton, G. Hamner Croughton, G. D. Milburn, and others. A full report of all will be promptly given in The Photographic Times.

HER PHOTOGRAPH.

Her photograph, each line of grace
Brings to my mind a pretty face.
Her soulful eyes I seem to scan;
Ripe, pouting lips behind a fan;
A sylph-like form arrayed in lace.

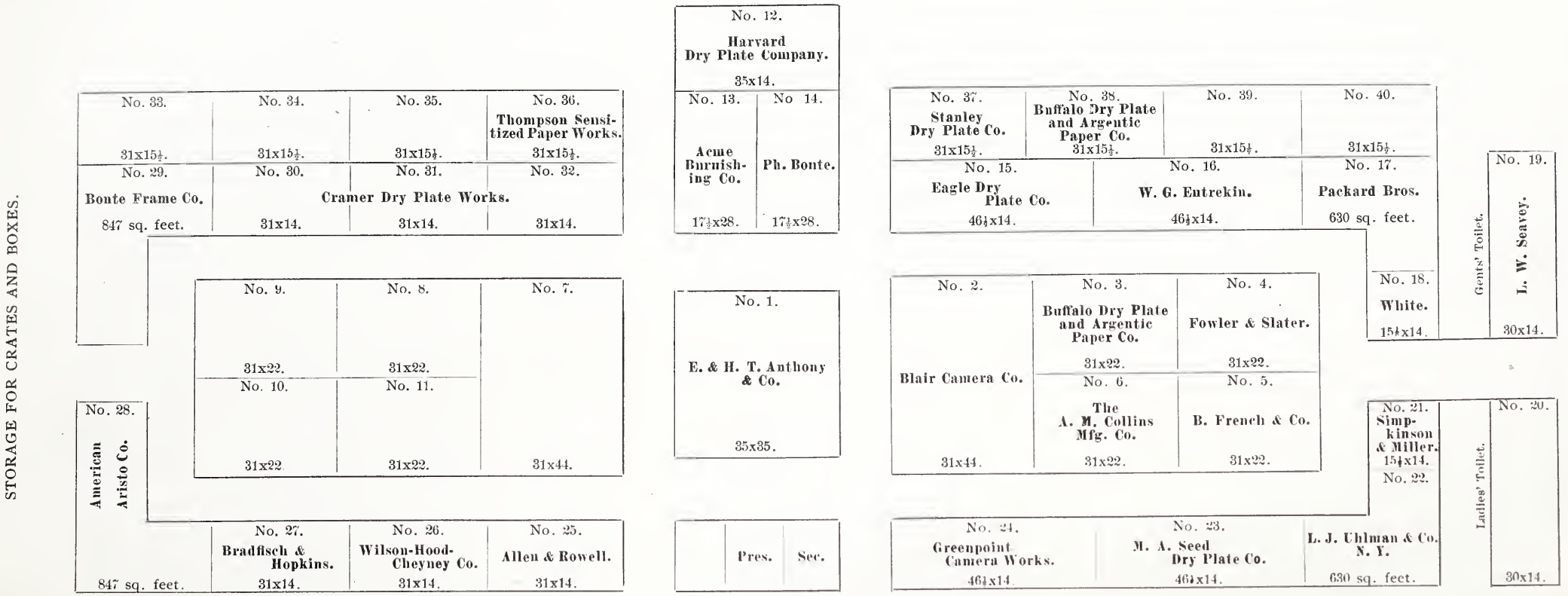
Ah, as the dainty thing I trace,
My pulse beats at a livelier pace.
I view with what delight I can
Her photograph.

Oh! some one beat me in the race—
With cunning art he took my place
Just as my dream of love began.
Thus I'm a disappointed man,
And I have but—how sad a case!—
Her photograph.

Obscurer.—Photographer: Why do you keep that room so dark? That camera yonder is an object quite obscure.

Amateur: That's nothing; in your place you have a camera obscura.

DIAGRAM OF THE MERCHANTS AND MANUFACTURERS' EXHIBITION HALL.



STORAGE FOR CRATES AND BOXES.

FIRST FLOOR PLAN.—MAIN ENTRANCE.

EXPOSITION BUILDING, BUFFALO, N. Y.

WHAT TO SEE IN BUFFALO AND HOW TO SEE IT.

Although Buffalo is scattered over a vast territory, yet it is a very easy matter to reach every important place in it without any loss of time and at a very slight expense. Belt line trains, street cars, herdics, omnibuses and ferries make the principal places accessible. But for the guidance of those who are undecided, some of the most noteworthy places are here enumerated, together with a brief direction as to the quickest and most economical way of reaching them.

Delaware Avenue.—Nearly every city has the pride of a chief or principal street or avenue. Hence, New York has its Fifth Avenue, Chicago its Wabash Avenue, Cleveland its Euclid Avenue, Detroit its Woodward Avenue, and Buffalo glories in Delaware Avenue. Visitors and strangers "doing" the city, will not overlook this beautiful and attractive thoroughfare. It runs parallel with Main Street, in a central portion of the city, along an elevated plateau with a gradual slope from either side of the avenue. It extends from the Terrace on the south to the city line on the north, a distance of about four miles, bisecting the Park and Forest Lawn Cemetery, passing under one of the Park driveways through an immense stone arch.

A Fine Carriage Drive.—Presuming that the tourist starts with a carriage from one of the principal depots or up-town hotels, a drive to Main and Niagara Streets will bring him to the oldest church in the city, as well as to St. Paul's Cathedral. A short distance to the west, the oldest school in the city may be seen, and directly to the south is St. Joseph's Cathedral and the present residence of Bishop Ryan. Almost opposite to this is the building containing the Police Headquarters. At the corner of Church and Franklin Streets is the City and County Hall, while in the rear are the Jail and Morgue. Leaving these buildings by way of Delaware Avenue, Niagara Square is reached; a drive down Niagara Street to Pennsylvania Street, brings you to the Erie County Penitentiary; thence, by way of Front Avenue, Prospect Park and "The Front" (a beautiful portion of the park system) are reached, and a little beyond is Fort Porter, a United States Military Post. Continuing along the bank of the Niagara for nearly two squares, the extensive Water Works, which supply the fresh water of Erie and Niagara in unlimited quantity to the entire city, are reached. Going down Niagara Street, you pass the International Ferry to Fort Erie, and further down you will reach the International Bridge. Returning to Forest Avenue and going east a short distance, the Buffalo State Insane Asylum is reached, and continuing along Forest Avenue and Lincoln pathway, the beautiful Park Lake will be seen. This is the center of attraction of the vast and beautiful park system which encircles the city. A drive along the northern shore of this beautiful lake, and thence to the north-east, will bring you to Main Street. Another mile and a half out along this street will bring you to the Poor-House and Erie County Insane Asylum. Returning along Main Street, Forest Lawn Cemetery may be entered. This place looks more like a beautiful park, with its hills and dales, lake and stream, than a city of the dead. Leaving Forest Lawn by the south-western gate, you pass the Buffalo Crematory, a brown stone structure looking like a chapel; thence going east by one of the avenues to Humboldt pathway, and continuing along this towards the south, "The Parade," another extensive portion of the Park, is passed. A drive along Fillmore Avenue to Broadway, and up this street to Main, will complete a pleasant circuit. At Broadway and Washington Street is the Buffalo Library building, containing, besides the library, the rooms of the Buffalo Historical Society, the Fine Arts Academy and the Museum of the Society of Natural Sciences. Fronting this building is Lafayette Square, with its fine Soldiers' and Sailors' Monument. On this circuit numerous fine churches, elegant residences and large manufacturing establishments are passed.

Other Places to See.—Those interested therein may also make short trips to the Fremont Place Armory, at Virginia Street and Fremont Place, the quarters of the Seventy-fourth Regiment; the Sixty-fifth Regiment Arsenal, at Broadway and Potter Street; the Stock Yards, on William Street, East Buffalo; the Wagner Sleeping-Car Shops, on Broadway; the Chippewa Market, at Washington and Chippewa Streets; the Elk Street Market, on Elk Street; Music Hall, at Main and Edward Streets; Buffalo Medical College, Main and Virginia Streets; Niagara Medical College, Ellicott Street, near Broadway; State Normal School, Jersey and 14th Streets; High School, Court and Franklin Streets; Dr. Pierce's Invalids' Hotel, Main Street.

Presidential Homes.—At the corner of Delaware Avenue and Niagara Square is a gothic residence, which was formerly the home of President Millard Fillmore. It was built in 1850. After the death of Mrs. Fillmore, the building was converted into a fashionable boarding house, and as such it is still occupied.

Grover Cleveland's bachelor quarters were in the Weed Block, at the corner of Main and Swan Streets; and here, also, were his law offices, which are still occupied by his old partner, Wilson S. Bissell.

Bird's-Eye Views of the entire city may be obtained from various places, but the best may be had from the City Hall tower, and from the roof of the Board of Trade building, on Seneca Street near Main; both are easy of access. On the latter is located the U. S. Signal Service Office, and two passenger elevators save the weary tourist from climbing seven flights of stairs. Permission to go out on the roof may be obtained in the Signal Service Office.

Out-of-Town Excursions.—Cheap and pleasant excursions may be made from the foot of Main Street. A trip up the Blackwell Canal to the Tifft Farm, will give the visitor an idea of the immense grain, lumber and coal interests of Buffalo; from this place also, excursion boats may be taken to Fort Erie, up Lake Erie to Port Colborne, down Niagara River and around Grand Island, etc., return trip tickets costing the small sum of from fifteen to fifty cents. Excursion trips may also be made in winter or summer to Niagara Falls and return for fifty cents.

LOCAL MODES OF CONVEYANCE.

Belt Line.—This is a double-track railroad, encircling the city. Trains run both directions from 5.45 A.M. to 12 P.M., and the round trip, including stops, is made in forty-five minutes. They start from the Central Depot, on Exchange Street, and stop at the Terrace, Porter Avenue (near Fort Porter and "The Front"), Water Works, Ferry Street, Black Rock (or International Bridge), Delaware Avenue (north of the Park and Forest Lawn), North Main Street, Driving Park or International Exposition, William Street (near the Live Stock Yards), and other

places. This trip gives the visitor a good idea of Buffalo. The fare is from five cents upwards, according to distance traveled, and for the round trip is thirty cents.

STREET CARS.--The entire city is covered with a network of street railways, so that it is possible to reach almost any important point. The principal lines are on Main, Niagara, Broadway, William, and Exchange Streets, while belt lines connect or branch off from these. Street cars pass all the depots. The cars from every line pass the corner of Main and Niagara Streets, and this is the best starting-point for a stranger to go to any place in the city. Any conductor will tell you which car to take to reach any given point. The fare on any line and for any distance is five cents.

STAGES.—There are three lines of stages: The Herdics, running from the eastern section of Seneca Street to Main, thence along Main to Huron, and out Prospect Avenue towards Black Rock, or out Chippewa and Franklin Streets; the Delaware Avenue stage line, starting from Main and Seneca Streets; and the Elk Street line, starting from the same place in an opposite direction. The fare on any of these is five cents.

CABS AND CARRIAGES may be secured at Lafayette Square, or at the stand on the corner of Main and Niagara Streets, or at any livery stable. Before hiring a cab, be sure to make an exact agreement with the driver as to the charge, and thus avoid a conflict at the end of the journey.

LEGAL RATES OF HACKMEN'S FARE.

The city ordinances on this subject are as follows:

For conveying one passenger any distance not exceeding one mile, 50 cents; and for each additional passenger, 25 cents.

For over one mile and not exceeding two miles, every passenger, 50 cents.

For over two miles, every passenger, $1.

For vehicle by the hour, for one or more persons, $1.50 for every hour, with privilege of stopping as often as required.

THE DEVELOPMENT OF FILMS.

TO-DAY everything is becoming more and more mechanical, and thus we find that films are developed in strips of four and five.

The result of this is that we have many fair negatives, but really good ones are the exception, as no account can be taken of the difference in exposure.

There is no doubt that speed is a great desideratum, but everything must not be sacrificed to it. Now, if we separate each exposure, and then after soaking them in cold water, place two in a pan, back to back, we can develop them at the same time with any standard developer, both can be examined and removed independently, and thus we have speed without sacrificing anything.

A. R. Frank.

ON THE PHOTOGRAPHIC TREATMENT OF THE SMALL BOY.

"You bless the mutton; we'll do the rest;" as the small boy said to his father at the Sunday dinner table, and was justly spanked.

In your photographic wanderings you have all met this form of nuisance, and have often wished that the law wouldn't interfere if you gave him his just deserts. After setting up the camera and carefully focusing the desired object you suddenly discover in the immediate foreground a cross-eyed boy with a mouth like a quaker graveyard, who insists on your taking his picture. You tell him to go away, and his mouth stretches another inch horizontally; swear at him, and he likes it; threaten, and he laughs you to scorn; and finally, approach him with loaded shoe-toe. He departs quickly, but returns to his old position just as you are about to remove the cap, with perhaps two or three other imps, to make the picture more effective, and you more mad. The trio or quartet just revel in fun; the point of the joke escapes you, however. Their hilarity is considerably increased when you seek refuge under the focusing cloth, and they make sundry odious comparisons, also the rear position of your anatomy a target for ammunition from sling-shots. And finally you pick up your camera in disgust and depart with a howling mob of small boys at your heels and an unexposed plate in your holder.

The best way to get into the small boy's good graces is to flatter him. When he asks you to take his picture, tell him he is too handsome, your camera won't do him justice. If he insists, ignore him entirely (unless he stands immediately in front of the lens, then assassinate him) until you are ready to draw the slide. Then discover the fact that the boy is not in a good position; tell him so kindly, and suggest a place several feet to the right or left. "That's better; now just a little more;" until he is entirely out of the field of the lens. Make the exposure without his knowledge, then make a sham exposure (taking off the cap with the slide in) and tell the boy to keep perfectly still, look straight at the camera, and be sure not to wink his eyes. In about a minute he will wilt (especially if it is a hot day), and after you have promised to send him a picture if his portrait is good, he will quietly steal away and bother you no more. This scheme has been worked on New York policemen with great effect, and the gradual melting of stern dignity at the end of the second minute was most touching.

W. N. Jennings.

A Common Treatment.—"Talk about your strange cures. Don't you think photographers believe in the frequent laying on of hands?"

"No."

"Why, they seem to be always engaged in retouching."

A NEW PHOTOGRAPHIC OBJECTIVE.

In view of the rapid and continually increasing succession of inventions and improvements made in all branches of photography, and of the important part which the objective plays in the progress of the art, it is a surprising fact that, since the appearance of Steinheil's "aplanat," so many years ago, no real optical improvement has been made in the construction of photographic objectives; but that, despite the constantly increasing demand for a better lens, the principle discovered by that eminent optician, and the particular type of objective based on that principle, steadily remained the standard in the manufacture of photographic objectives since its first introduction and up to the present time. In view of this remarkable fact the writer takes particular pride in presenting herewith to the photographic and scientific world a description of a new objective, which, after long and most ardent endeavor to perfect, is now deemed ready to be submitted to the criticism of the interested scientist and to the practical trial of the intelligent photographic worker. This is done with the full belief that this invention will not only be generally accepted as an essential and valuable contribution to real progress, but that it also may serve to incite the minds of inventors to new ideas and further improvements.

The invention and its principle is of a purely optical nature, and consists of a successful transformation of the Steinheil achromatic double meniscus—the constituent of his "aplanat"—to a *triple* meniscus of novel and peculiar form, the theoretical principle and great practical advantages of which are as follows:

Owing to the fact that the ratio of the color-dispersive power of flint glass to its medium refractive power is *greater* than that of crown glass, an *achromatic* lens is produced by the combination of a positive crown glass lens with a negative flint glass lens, the dispersive power of which is equal in amount to that of the crown glass lens, for with equal amounts of dispersive power the medium refractive power of the crown glass lens is *greater* than that of the flint glass lens, and the preponderant part of that of the crown glass lens forms the positive focal power or focal length of the combination, thus being the true constitutent of the achromatic lens. (Focal power is here termed the magnifying or reducing power of a lens as expressed by the reciprocal value of its focal length.) Now it is obvious that the greater the dispersive power of the flint-glass employed the lower a focal power of the crown-glass lens will be required for a given focal power of the combination or achromatic lens, and consequently the smaller will be the amount of color-dispersion to be corrected by the flint-glass lens.

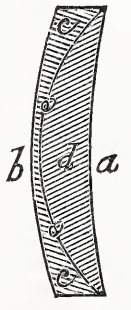
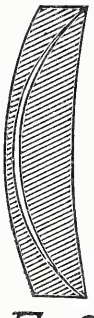


Fig.1.


Fig.2.

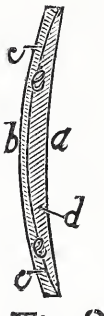


Fig 3


Fig.4.

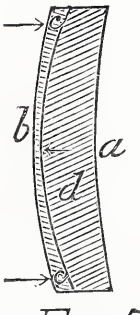


Fig.5.



Fig.6.

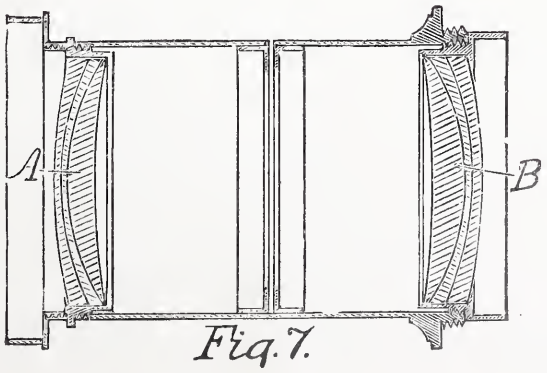


Fig.7.

Furthermore, regarding the established fact that in an achromatic lens neither the spherical nor the chromatic aberrations can be completely neutralized, but that more or less small proportions of these errors (the aberration sof second order, consisting in an incomplete or under correction of the central part or toward the center, and a corresponding over correction toward the edge of the lens) will always remain, it follows from the foregoing conclusions that the amount of chromatic aberration of second order in an achromatic combination will be the smaller the greater the dispersive power of the flint-glass employed. While thus the amount of chromatic aberration of a single or uncorrected lens depends with a given kind of glass on its focal power or focal length alone, and is to be corrected accordingly, its spherical aberration, however, depends also and in a higher degree on the form of the lens—that is, on the difference of the curvatures of its surfaces—and is the greater in amount the more said curvatures differ from each other. An equal-sided lens is, under ordinary conditions, of minimum, a meniscus—that is, a concavoconvex lens—of maximum spherical aberration. The spherical aberration of a positive lens may therefore be corrected by a negative lens of almost any focal power if the curvatures of the same can be made to differ sufficiently to produce an amount of spherical aberration equal to that of the positive lens. If, therefore, the positive lens is of minimum spherical aberration—that is, equal-sided, or nearly so—a negative meniscus of much lower focal power than that of the positive lens may correct said aberration, and since the difference of the focal powers of the components forms the focal power of the combination, the latter will in this case be comparatively great, or, *vice versa*, the focal power of the positive component will be comparatively small, and consequently the amount of spherical aberration to be corrected by the negative lens will be small, leaving a correspondingly small amount of aberration of second order. If, however, the positive lens of the combination is itself a meniscus, as is the case with the photographic objective, then the focal power of its negative or correcting lens cannot be made to be much lower than that of the positive lens, or else it would be impossible to produce, even with the greatest admissible difference of its curvatures, the amount of negative spherical aberration required for the correction of the positive lens, and consequently the remaining focal power, respectively that of the combination, will be small in comparison with that of its positive component. Hence the focal power of the crown-glass lens in an achromatic meniscus of a given focal power is to be comparatively great, and being besides this a meniscus itself, its spherical aberration must be accordingly great, thus leaving a correspondingly great amount of aberration of second order after being corrected by the flint-glass lens.

Having thus pointed out the distinguishing characteristics of the two optical aberrations and explained the proper mode of their correction, it remains to illustrate the principle after which both corrections are accomplished at the same time in the modern photographic objective.

Fig. 1 of the accompanying drawings is a sectional view of a meniscus of the ordinary photographic objective, the components being cemented together. Fig. 2 shows a meniscus the spherical aberration of which is corrected by a negative lens made of a glass of equal refractive power to that of the positive lens, the components not being cemented together. Fig. 3 shows a cemented meniscus in which the chromatic but not the spherical aberration is corrected by a negative lens made of a high-dispersive flint-glass. Fig. 4 represents an uncemented meniscus made of the same kinds of glasses as Fig. 3, but both the chromatic and the spherical aberrations being corrected. Fig. 5 is designed to demonstrate my novel way of so altering the form of the meniscus (Fig. 3) that both optical aberrations are corrected and at the same time the components of the meniscus can be cemented together; and Fig. 6 shows the alteration completed, thus representing in sectional view my new photographic meniscus or objective. Fig. 7 is a longitudinal section of a compound photographic objective consisting of two meniscuses of my new type.

The meniscus (Fig. 1) is composed of a positive crown-glass lens, *d*, and a negative flint-glass lens, *c*, the latter being of lower focal power than the crown-glass lens thus leaving the preponderant part of the latter as the focal power or focal length of the combination. The facing sides, *e*, of the lenses are of equal radii of curvatures and are cemented together, this arrangement being a necessity in photographic lenses. The fact that flint-glass has not only a very high color-dispersive power, but that also its medium refractive power is greater than that of crown-glass, permits the cementing; otherwise the flint-glass lens would have to be of a still shorter meniscal curvature, so as to form a space between the lenses, as shown in Fig. 2, in order to produce with its lower focal power an amount of spherical aberration equal to that of the crown-glass lens.

Suppose now the flint-glass lens, *c* (Fig. 1) to be

made of ordinary flint-glass, such as is commonly used in telescope objectives and similar achromatic lenses. Then the internal sides, *e*, being, as may be assumed, of the proper though unusually short curvature as required in this case for the correction of the spherical aberration, will be much too short for the proper correction of the chromatic aberration, thus producing a corresponding over-correction of the same. If then the curve, *e*, be flattened, the dispersion of both lenses will be reduced of course; but that of the flint-glass lens will diminish in a higher ratio than that of the crown-glass lens, owing to the higher dispersive power of the former, and thus a point will soon be reached at which the dispersive powers of both lenses are equal in amount, as required for the correction of the chromatic aberration. Fig. 3 is to illustrate this case, showing the inner curve, *e*, as being considerably flatter than in Fig. 1 and at the proper radius for the purpose, as may be assumed. This change, however, interferes with the correction of the spherical aberration, which is thereby reduced to a corresponding under-correction, as is obvious.

It will now be readily understood that owing to the peculiarly conflicting relations and the distinguishing characteristics of the two aberrations, as shown, it is impossible to correct both aberrations of a crown-glass meniscus at the same time by the single means of a negative lens made of ordinary or any other high-dispersive flint-glass in the manner described and illustrated by Figs. 1 and 3. Considering, however, the causes of this impossibility, as shown, it suggests itself that with a flint-glass of a certain low-dispersive power, or with two glasses of a correspondingly low difference of their dispersions, the desired result may be fully accomplished, and that such special properties of the glasses as required for the purpose may be accurately predetermined by calculation. This principle was discovered by the late mathematician, Stenheil, of Germany, many years ago, and has been ever since and up to the present time generally adopted by all the leading opticians in the world. In fact is has been and is yet the basis *par excellence* for the construction of photographic objectives.

In my foregoing description of the optical aberrations I have shown that the amount of the chromatic aberration of second order in the achromatic lens will be the smaller the higher the color-dispersive power of the flint-glass employed. The same is the case with the spherical aberration of second order, for since the focal power, and with it the chromatic aberration of the crown-glass lens are reduced by the use of high-dispersive flint-glass as I have shown, its spherical aberration must also be reduced in the proportion. Let us now apply these rules inversely to the modern photographic objective described, and it appears that, notwithstanding its valuable and superior properties, a serious defect is nevertheless inherent in the same, consisting in an excessive amount of aberrations of second order as an inevitable result of the employment of a flint-glass of extremely low dispersive power, and the reduction of this defect to an imperceptible minimum is the object of my improvement, which I describe as follows:

I employ in my new photographic objective the ordinary telescope flint-glass, or even such of still higher dispersive power, and I form and arrange the whole in such a novel manner that both the spherical and the chromatic aberrations (of the first order) will be corrected at the same time. Thus I secure the great value lying in the employment of high-dispersive flint-glass and accomplish the desired purpose under full preservation of the advantages otherwise attained by the use of low-dispersive flint-glass, as in the old meniscus described.

Let us refer again to the meniscus (Fig. 3) of the accompanying drawings, in which a flint-glass of high-dispersive power is assumed to be employed, as described, and it will be remembered, as I have shown, that in this form of meniscus the correction of the chromatic aberration requires the internal sides, *e*, of the components, *d* and *c*, to be of much flatter curvature than those in Fig. 1, where a low-dispersive flint-glass is employed, but that with such flat curvature the spherical aberration is only partly neutralized, respectively, under corrected. A simple way, however, of completing the correction of the latter without disturbing that of the chromatic aberration will be to shorten the meniscal curvature of the flint-glass lens, *c*, under preservation of its focal power.

Fig. 4 represents the type of aplanatic meniscus thus formed, and, indeed, this form would be a great improvement over that now in general use were it not for the fact that the lenses cannot be cemented together, and thus the two surfaces, *e* and *g*, be allowed to cause reflections very injurious to the photographic image or picture. Let us therefore return to the meniscus (Fig. 3) and suppose the flint-glass lens, *c*, to be flexible, the crown-glass lens, *d*, however, to be in a fluid state. Let us further presume the whole to be inclosed in a vessel for the purpose of preserving the outer form of the meniscus. Let, then, the edge of the flint-glass lens, *c*, be bent off the side, *b*, of the vessel toward

the side, *a*, while the center of the lens is held in its place against the side, *b*, of the vessel, as illustrated in Fig. 5, and indicated by the arrows. This operation will shorten the meniscal curvature of the lens and increase its negative spherical aberration without disturbing the chromatic correction of the combination. Let the operation be continued until the flint-glass lens has attained the form presented in Fig. 6, assuming that at this curvature the spherical aberration of the lens has reached the required amount. This is the point where both aberrations are corrected in the combination, and therefore the desired result is accomplished.

The form of the crown-glass lens, *d*, has, by the described operation certainly been changed at the same time with the flint-glass lens, as will be seen, apparently, and in fact being now of but little less aberration than the crown-glass lens, *d* (Fig. 1); but the superfluous part of it has passed over to the other side of the flint-glass lens, forming there a new crown-glass lens, *f*—viz., a negative meniscus of nearly the form as if it had been directly separated from *d* by a cut. Thus these two new lenses, *d* and *f*, present combined an amount of spherical aberration but little greater than that of the crown-glass lens, *d* (Fig. 3), and much smaller than that of *d*, Fig. 1. Hence its correction by the flint-glass lens will leave an exceedingly small amount of aberration of second order. Furthermore, it is obvious that the focal power, and consequently the dispersive power, of the combined crown-glass lenses, *d* and *f*, are also accordingly diminished as against that of *d* (Fig. 1), being much lower than the latter, and therefore a correspondingly small amount of chromatic aberration of second order will remain, as follows already from the simple fact that a high-dispersive flint-glass is employed, as shown before. Thus the object of my invention has been fully accomplished by the described transformation illustrated in Fig. 6, as will be clearly understood, and said diagram may therefore be regarded as being a true representation of my improved aplanatic meniscus, which, as will be seen, forms a triplet of a novel type, consisting of one positive and two negative meniscuses of such forms as to permit their cementing together, and being combined in such order that the concave side of the positive meniscus forms one and the convex side of one of the negative meniscuses the other side of the combination, and the sides or surfaces of said meniscuses being of such proportional curvatures as to comply with the requirements of aplanatism, permitting neither over nor under correction of any of the optical aberrations to exist in the combination.

In conclusion, two practical advantages of my new triplet over the ordinary meniscus are as follows:

1. The flint-glass lens, being inclosed and protected by the crown-glass lenses, can be ground extremely thin, and thus its yellowish tint be made imperceptible.

2. The flint-glass lens is completely protected against oxidation and mechanical injuries.

Ernest Gundlach.

BACKBONE.

WHILE looking for a nickel we found a dime.

It came in this way: In the course of some experiments with retarding agents we stumbled upon a compound which not only retards but imparts a soft and silky delicacy to the negative quite unexpected—as retarders are generally producers of harsh effects. Having found the key to the new power, we varied proportions with it by adding more or less with the pyro until we found it possible to overtime sittings to extravagant extent, and by use of "backbone" in stiff quantity, to have negatives timed fifteen seconds, when three seconds would have been sufficient. We have proven to ourselves that the addition of this retarder to the developer in regular work is a wonderful advantage, the advantage of control, to define, to give both brilliancy and softness.

Use it with your pyro as you do sugar in your coffee, in such quantity as suits your taste; you will soon find by trial when it is right. It is always good. It is particularly good to save overtimed exposures, and it is excellent in making dense negatives, such as copies where strong density is required.

To a normal developer of pyro and sal soda this restraining solution is to be added in quantity to be governed by the effect desired to be gained. To the bulk of made developer may be added backbone from 3 to 20 per cent.

No claim is made of discovering this formula. It was published in the *Scientific American* some time ago, and recommended for developing black and white negatives for process printing:

FORMULA.

Bromide potassium	3¼ ounces
Water	6½ ounces

Dissolve.

Iodine	15 grains
Alcohol	6½ ounces

Dissolve.

Mix the two solutions; use as described.

J. F. Ryder.

FAST FRIENDS.

Our extra full page picture is a photo-engraving by the well known half tone process from an engraving. It is an attractive picture, well reproduced, and the Mound City Engraving Company, which supply the illustration, are entitled to our thanks and our praise.

THE BASKET HAT.

A Convention Story.

"A gold medal for the best portrait photograph; a silver medal for the second best; a bronze medal for the third best. The awards to be made according to the artistic merit of the pictures."

This was part of an announcement for a series of contests in the art of photography, which was to take place during the coming Convention of the Photographic Association.

I was young and ambitious; I had been working in Mr. Rowe's photo studio for two years; in a word, I saw a chance of advancement and sent in my name as a contestant.

I had two weeks' time yet to send in my picture; but this was my first attempt to take part in a competition for distinction, so I went at it as a new hand. I did not lose a day, but went at once to my sweetheart and asked her to pose for me for my picture. I was sure her charming face and brilliant eyes would win me the laurel of honor.

Marie consented more readily than I had expected; I could hardly repress my joy She was prompt next morning with her little brother at the studio. Mr. Rowe was not down yet, and I felt quite at ease. She came out from the toilet parlor dressed exactly in the style I desired. She looked like a plain country-girl. Her hair was loose on her shoulders and her eyes were shining as brightly as stars. Such eyes! She took in her arm the basket of flowers that I had procured for the occasion. she had not a hat on. The screens were in their places. I fixed the head-rest and gave the proper light by the aid of the window shades, then focused the camera.

"Now Marie, just bend your head a little further toward your left, and have a smile on your face." Marie broke into a roar of laughter in which little Fred joined most heartily. "It's hardly necessary to try for a smile; now just look pleasant." But there came forth another burst of laughter. "Now again, ready? Hold the basket a trifle higher." Another roar, in which I was driven to take part. "Just let us try once more, Marie," I pleaded; "now take your pose again." I looked behind and saw Mr. Rowe standing at the door.

"For the competition," I stammered, while Marie was getting out of her fit of laughter. "Go ahead, then, George," said Mr. Rowe; "I am not going to interrupt you, but I would suggest that you do not look at each other's face while exposing the plate; then you will succeed." Then he left the room.

His suggestion worked splendidly. Marie posed again, I focused the camera, attached the plate holder, lowered my eyes down toward the floor—

"Now ready?"

"All ready, George."

"Now, then. One, two, three—quiet." Then I pressed the shutter open, counted the seconds, and let the shutter close.

"Here you are." But before I looked at her she had put the basket of flowers down and was repairing to the dressing parlor. "I can't wait for developing the plate, but don't be angry if you find the picture different from what you expected," she replied, when she came out of the room. I assured her that I would surely be delighted in the picture. She was leaving town that afternoon for her uncle's, to spend a fortnight there, so I thanked her for her favor to me, and bade her good-bye.

I was kept busy all the morning with some customers for cabinets, but after dinner I went to the dark room, took the plate out of the holder, put it in the tray, poured in the developer and watched for the first lights.

Horrors! An upturned basket, barring the face out of sight! I turned the plate around, but no, I found out soon as the rest cleared in the developer that my chances for competition were ruined.

I had assured her that I would be good natured, but I was angry just the same.

"All bright-eyed girls are mischievous," said Mr. Rowe, who was rather at a loss how to console me. But I loved Marie, and I could well let this chance of horror go by for her sake. Certainly I would not look for another subject for the contest.

Nearly two weeks had elapsed. I was retouching a negative when I heard a familiar footstep approach and Marie entered the gallery in breathless haste.

"Forgive me, George," were his first words. "I have been very unhappy all this while over what I did so thoughtlessly. I thought then it would be lots of fun."

"I am sure you did not do any harm, for I still hope I will be awarded the first medal for my picture," I replied, slightly in sarcasm.

"What! do you mean to say that you have sent *that* picture down to the Art Hall?"

"Why, Marie was not that picture intended for that special purpose?"

"Now, George, stop, if you are joking. It is not a bit funny, but if you have really sent it down, we are strangers after this, Mr. Burns."

"One word, Marie," I pleaded, but she had already left the room. I was trembling from head to foot. Every one at the table that evening said that I had some trouble, but my little seven-year-old sister guessed the right trouble. "He is in love," she said with a merry face, and every one laughed heartily at my expense. None of them could imagine that she was right.

When I retired to my room I cried bitterly, although in silence. I could count years since I had cried last. I had often read with indifference of hearts breaking for love, but now I was crying for it at twenty-one.

But crying relieved me somewhat of my anguish and I slept soundly that night.

After a hasty breakfast I went to the Art Hall. The awards were to be made in the forenoon. A large crowd had filled the hall. The music stopped at ten o'clock and the chairman was greeted by long applause at his short but eloquent speech. But I am sure I never enjoyed it. I had never felt so restless in my life.

Then the foreman of the judges announced the awards for the first series of the contest. It was about some crayon works.

Then he continued: "The next series consists of portrait photographs, three medals for the best three according to their artistic merit. Now, ladies and gentlemen," he continued, "there have been many pictures sent for this series, and it was somewhat difficult to decide which three would be selected as the best. Every one of them is furnished in first-class style, but from an artistic point of view we have selected three, which are in our judgment superior to the rest. The first to which we award the gold medal is the picture of a girl, whose mother no doubt sent her for some flowers with a basket." In an instant the hall darkened before my eyes into a mist, and I could only see on the other end of the hall a familiar but crimson face, with two sparkling eyes, whose brightness was never before equaled by any other pair of human eyes; then I heard the speaker continue. "But this little maiden had a very different idea altogether about a flower basket; besides she would rather look like a lady than go out barcheaded, so she put the basket on her head, and held the flowers in her hand. Mr. George Burns seems to appreciate high art deservedly, as he has caught her in the picture while she was looking from under the basket hat with two shining eyes in a way that show what *a mischievous little lassie* she must have been."

I was called to the front while the audience was still in a roar of laughter, and amid long cheers I received my medal. I bowed for a red rose thrown from the audience and returned to my seat.

While leaving the hall after the session was closed I felt a tap on my shoulder. It was Mrs. Strong. Marie was at her side.

"You must come with us to dinner, George, and forgive Marie for what she has done," she said.

My emotions would not permit me to utter a word.

"He has forgiven me already, mamma. See my rose on his breast," Marie added.

I went with them to dine.

D. M. Haig.

A PLEA FOR SIMPLICITY IN POSITION.

Two valuable lessons may be learned by the young photographer from the phototype of the late Mr. Barnum, by Gutekunst, published as frontispiece of The Photographic Times of June 5th.

First, it teaches that *a simple position* is not inconsistent with high excellence in photographic portraiture; and second, that *excessive retouching* is not an indispensable requisite to the same end.

The position in which this distinguished American is represented appears perfectly natural and easy, as if it might have been voluntarily assumed. The picture is entirely free from any obvious suggestion that the artist—that is, the person who was responsible for the placing, arranging and lighting of the sitter, made any uncommon effort to produce a startling or impressive effect in keeping with the dignity and importance of the occasion. He does not trouble himself nor discommode the sitter by turning his body in one direction and his head in another, to denote that he, the artist, knows a trick or two about posing. Nor is there any "darkest Africa" on one side of the face, while the other blazes with light, but an easy, quiet gradation of light and shade pervades the picture, which is as a whole an admirable example of photography in its highest and most beneficent function—that of portraiture from life.

If I am not greatly mistaken, the ostentatious display of effort to achieve some striking or dramatic effect of pose, in most instances so wholly uncalled for, is one of the worst faults of the pre-

vailing fashion in these productions. What is wanted in these, above everything else, is, an easily recognized resemblance. In a vast majority of cases—say, ninety-nine out of every hundred—any attempt at a fancy position is as ridiculous as it is absurd. Nevertheless the average professional positionist, as he modestly styles himself, appears to feel called upon to *show off* on every available victim. And the beauty of this showing off is, that it has no relationship to good taste any more than it has to common sense. One of the chief problems which he sets himself to solve seems to be: Given such a position of the body as required to display the wearing apparel to the best advantage, how much twisting will the head stand without jugular dislocation. It is not of the slightest consequence whether the picture conveys to the observer a sense of ease or repose, or even of tolerable comfort on the part of the sitter; much less is it of any consequence to him whether it has an air of naturalness to his most intimate friend.

Many years ago, before negative retouching was known, and when consequently a fine printing negative was not to be despised, I made one supposed to be of that sort, of a gentleman from New York, the finished proof from which happened to be very satisfactory to himself and friends, and he requested me to send him the negative. On taking it to a metropolitan photographer for duplicate prints he was surprised to learn, for the first time, that he had wasted his admiration on an unworthy object. No fault was found with the execution of the negative, but "the pose was of no account," or words to that effect. He could "discount that any day." I was, and am still willing to admit he could have done all he claimed, but whether the picture, as a likeness, would have been more or less successful, is quite another matter. Possibly the gentleman and his friends were as competent to judge of its value to themselves as this photographer. However that may have been, the negative was broken before any new prints were made from it. As a balm for my wounded credit, the owner afterwards wrote "it was the best negative he ever had taken," notwithstanding the absence of dramatic effect in the position.

Nothing is easier than to place a chair facing the camera, and when occupied, direct the sitter to twist his head to one side or the other. This is often done with apparently no other motive than to give an unobstructed view of the triangular space occupied by the throat, collar and necktie. With a high standing collar which the chin when turned surmounts with difficulty, this trick gives an air of stiffness and discomfort rather calculated to awaken sympathy than pleasure in the beholder. As a further specification let the side of the face which in this group of phenomena, called a bust, is made to overhang the open triangular exhibit aforesaid, be so turned as to bring it into shadow, and nothing more will be needed to complete the startling effect aimed at, namely, to make the collar and necktie the most conspicuous features of the composition.

An article in the May number of *The Cosmopolitan* is illustrated by a gamut of seven musical heads in *half tone* presumably reproduced from photographs from life. There is something remarkable in the way nearly all these heads are turned. At first I imagined they were intended as examples showing the mannerism of the New York school of photographic art. Then I was struck with the fact of their representing a *musical center;* then with the mystic number, seven; then with the "C" under the bust of Mr. Mortimer Wiske; and finally with the fact that this was the most *natural* one of the lot. Hence by a natural inference I deduced C *natural.* Then it occurred to me that here was in fact a riddle, or even perhaps a cryptogram! What could it signify? What indeed, unless it be a *tune*? A tune must have notes, and notes must have pitch, and pitch again depends upon the rapidity of vibration. Here was what appeared at first an insurmountable difficulty, for it is impossible to represent the comparative rapidity of vibration by the turning of heads in photographs without utterly ruining them as likenesses. But why not, by an easy transition, substitute gyration for vibration. Following this happy suggestion the mystery was soon resolved. Now the more rapidly any given thing gyrates the farther it will turn in a given time. Hence it naturally follows that the farther the head is turned the higher the pitch it represents.

Having discovered this photo-musico-cryptogram and the key to its interpretation, I shall leave it for some composer to evolve the tune and set it to words.

W. H. Sherman.

To Glaze Photographs.—A method of obtaining a glazed finish for albumen prints without the aid of gelatine has been suggested. A mixture of ox-gall and alcohol in equal parts is allowed to stand for several days, being frequently shaken in the meantime, so as to mix the substances thoroughly. A glass plate is then coated with the mixture and a washed albumen print is placed upon it and held there under pressure. After drying about an hour the print will come off with a surface beautifully glazed.

THE CHEMISTRY OF SILVER PRINTING.

CHAPTER I.

PRINTING WITH SILVER CHLORIDE ON A MATT-SURFACE.

THE first successful "photographs" were obtained by exposing opaque or semi-opaque objects to the action of sunlight while upon and in contact with some flat surface coated with a sensitive salt of silver.

As far back as 1727, J. H. Schulze printed letters and signs by means of sunlight upon a mixture of nitrate of silver and chalk. The great Swedish chemist, Scheele, made a classical investigation into the action of light upon silver chloride in 1777; and between 1790 and 1802 Thomas Wedgwood and Humphrey Davy obtained prints of "paintings on glass," leaves, wings of insects, and the shadows or profiles of opaque objects by means of paper or leather coated sometimes with nitrate of silver, sometimes with chloride of silver. But as even such a skillful chemist as Davy was unable to devise any means of "fixing" these prints, the process was abandoned as useless.

Talbot's "Photogenic Drawing."—Between 1835 and 1839, Henry Fox Talbot, an English gentleman of high rank, succeeded in devising a printing process which produced a surface highly sensitive to light. Paper was coated with a weak solution of common salt, and a solution of nitrate of silver was then brushed over it, the strength of the solutions being so adjusted as to leave a *slight excess* of the silver nitrate. Such paper was a hundred times more sensitive to light than paper coated with either the chloride alone or the nitrate alone.

Let us see what were the chemical changes involved:

$$AgNO_3 + NaCl = AgCl + NaNO_3$$

Silver Nitrate *and* Sodium Chloride *produce* Silver Chloride *and* Sodium Nitrate.

The common salt (sodium chloride) combines with the silver nitrate, and silver chloride is produced. Sodium nitrate is also produced; but this may be neglected, as it takes no further part in the work.

It seems strange that the paper coated with silver chloride, *containing in addition a little silver nitrate*, should be so much more sensitive to light than paper coated with the pure silver chloride alone. This is explained by the fact now known to us that perhaps no substance is sensitive to light when perfectly pure, dry, and isolated. The action of light is undoubtedly—as Scheele proved in 1777—to separate a part (or the whole) of the non-metal (the chlorine in this case) from the metallic silver with which it is combined.

$$2AgCl = Ag_2Cl + Cl$$

Silver Chloride *produces* Silver Sub-chloride *and* Chlorine.

Let us suppose the above equation to represent the action of light upon ordinary white silver chloride. We see that a part of the chlorine is driven off, while dark-colored silver sub-chloride remains. But unless there be some substance present with which the liberated chlorine can combine (as water, or, better, silver nitrate) the light is unable to decompose the silver chloride. This can be proved by exposing dried AgCl to sunlight in a glass tube from which air has been extracted; its color is unchanged.

Albumen Introduced in Silver Printing (in 1850) to Impart a Glossy Surface to the Paper.—This printing method, upon paper coated with silver chloride, and in slight excess of silver nitrate, which was published by Fox Talbot on January 31, 1839, has remained the chief printing process in use in photography right down to the present day.

From 1839 to 1850 the paper was always left with its natural or "matt" surface. But in the latter year, Blanquard Evrard and Gustave Le Gray, in France, introduced the plan of giving the paper a preliminary coating of albumen (white of egg) by which the surface of the paper was made very glossy, the details brought out, and the image prevented from sinking in. This albumenized paper was introduced into England by Talbot and Pollock in 1852–3.

During the last two or three years, however, a strong reaction has set in against this inartistic gloss, though for ordinary portrait work it still maintains its sway.

Modern Printing in Silver.—The photographic journals of the present day usually contain advertisements of "albumenized paper," and also of "ready sensitized" paper. The first of these has to be sensitized by the purchaser—usually the professional photographer; while the latter is preferred by the amateur, as it is ready to be at once placed in the printing-frame.

Preparation of Albumenized Paper.—Albumenized paper is albumenized and "salted" at the same time. The following mixture is prepared:

Fresh white of egg	7 ounces
Ammonium chloride	75 grains
Alcohol	2 drams
Distilled water	2 ounces

Dissolve the NH_4Cl (ammonium chloride) in the alcohol and water; add it to the albumen, and beat up vigorously. Filter through cotton-wool

which has been steeped in water. This quantity should be amply sufficient for a quire of paper. Place the mixture in a dish, and float each sheet of paper upon it, in turn, one-and-a-quarter minutes, taking care to avoid bubbles. Then hang the paper up by two corners to dry.

Double albumenized paper is made by exposing the paper, coated as above, to a current of steam by which it is coagulated and hardened. The paper is then floated on a *second* bath of albumen. Such paper has an extremely glossy surface, but it is more liable to crack and blister.

Some commercial makes of albumenized paper have a very unpleasant smell. This is usually due to *fermented* albumen having been used in their preparation, a method which is in favor with some large firms on the continent. Such paper will generally give fine tones. Sometimes, however, the albumen used has been allowed to become partially decomposed, or putrid, and the smell of sulphureted hydrogen then produced is not only offensive but may be dangerous to the permanence of the prints.

Albumenized paper is made so well (commercially) and sold so cheaply that we are not aware that any practical photographer has ever found it "pay" to albumenize his own.

Sensitizing Albumenized Paper.

A "bath" of silver nitrate must be made up by dissolving the pure crystallized salt in distilled water. The strength of this solution may vary from 30 grains (not less) per ounce for hard undeveloped negatives, to 80 grains per ounce for thin weak negatives. The best average strength is 60 grains per ounce.

The quantity of this solution to be made up for use varies with different workers, and with the size of the pieces to be sensitized. When sheets of albumenized paper of the full size ($17\frac{1}{2}$ by $22\frac{1}{2}$ inches) are to be floated on the solution, about a gallon of it will be necessary. In any case, it should be not less than half-an-inch deep in the flat shallow dish usually employed. The paper should be kept in a damp place for an hour or two before sensitizing; and it may be floated on the silver bath for two minutes (in summer) or three minutes (in winter). The chemical change that takes place during the floating may be thus expressed:

$$AgNO_3 + NH_4Cl = AgCl + NH_4NO_3$$

Silver Nitrate *and* Ammonium Chloride *produce* Silver Chloride *and* Ammonium Nitrate.

Silver albumenate is also formed; but its chemical composition is very complex and uncertain, and its presence is neither desirable nor necessary.

The paper is drawn over the edge of the dish to remove the otherwise too great excess of the bath solution which would cling to it; and is then either hung up at once by the corners to dry, or is first pressed between sheets of chemically pure white blotting-paper.

The worst thing about freshly sensitized paper like this is that it discolors if kept for more than two or three days. By keeping it between sheets of blotting-paper which have been soaked in carbonate of soda solution (1 to 20), and then dried, it may be kept white for two or three weeks. But its advantages are that it enables black tones to be got more easily, and that the paper can be sensitized (by the use of a weak or of a strong bath) to suit negatives of varying qualities.

The silver bath must not be acid. If it turns blue-litmus red (proving acidity), add a few drops of sodium carbonate solution until the blue color is just restored.

"Ready-Sensitized" Paper.—If albumenized sensitized paper will not "keep," the student may inquire how it is that paper of this description can be purchased from store-dealers which is warranted to keep for several months—sometimes for a year? The answer is, that such "ready-sensitized paper" has undergone a special treatment. What the exact nature of that treatment may be is rigidly preserved as a "trade secret," and the practice of different firms probably varies.

The following methods for the production of "ready-sensitized paper" have been published:

1. Add ten drops of perchloric acid to every ounce of the sensitized bath of silver nitrate.

2. Or, after removal from the bath, and when the paper has become surface-dry, float the *back* of the paper for one minute upon a solution of citric acid thirty grains to every ounce of water. The citric acid combines with the silver nitrate to form silver citrate, which is a much more stable salt than the nitrate.

3. Or, similarly, float the previously sensitized paper on the following solution:

Picked white gum arabic, dissolved in six pints of water	6 ounces
Citric acid	2 ounces
Tartaric acid	2 ounces
Hydrochloric acid	2 ounces

Float the *back* of the sensitized paper on this mixture for from half-a-minute to five minutes, according to the length of time the paper is required to keep.*

* Ashman's "Lessons in Silver Printing."

4. If the sensitized paper be *washed*, by floating it after sensitizing and when surface-dry, upon two or three changes of distilled water, it will keep for two or three weeks. The reason is, that the water removes nearly all the free silver nitrate. But such paper will not tone unless it be *fumed* before printing.

5. Sensitized paper keeps well if all moist air be excluded. This can be done by placing the paper in air-tight tins (like those used by the Platinotype Co.) containing calcium chloride.

Ready-sensitized paper is very convenient, and is largely used not only by amateurs but by professionals. It does not tone so readily, nor are black tones so easily obtained as with freshly sensitized paper. Before printing, it should be "fumed;" or, after printing and before toning, the prints should be soaked in a weak alkaline solution (see *toning*) to neutralize the acid by which the paper has been preserved.

"*Fuming*" *Sensitized Paper.*—It is a common practice in America—much less so in England—to expose each sheet of sensitized paper before printing for about ten minutes to the fumes of strong ammonia, placed in a saucer in an air-tight box, to the lid of which the paper is pinned. The volatile alkali (as ammonia is termed) destroys any free acid which may be present in the paper.

W. Jerome Harrison.

(*To be continued.*)

COPYING OLD PHOTOGRAPHS.

THE photographer is frequently called upon to make cabinets from small photographs, daguerreotypes, ambrotypes and tintypes; in fact, from every kind of types imaginable.

These are brought to him in every stage of preservation and decomposition. Some have furnished amusement as playthings for at least three generations of children, and still a good picture is expected.

The customer must not be promised too much. He should be allowed to examine the small picture through a magnifying glass, especially if it is badly scratched.

This will aid materially in delivering the finished work. A short focus lens and small stop should be used. Then no cone will be required, the ordinary bellows giving sufficient distance between the ground glass and lens. Photographs should be copied through glass.

Tintypes, if they have been varnished, should be cleaned with a tuft of cotton wet with coal-oil. This will remove the fine scratches so annoying to the retoucher. A great many ambrotypes and tintypes in cases have never been varnished. It will not do to varnish them now. They are liable to disappear.

Backgrounds, if badly defaced, should be blocked out with opaque in the negative. Border negatives and scroll work can be used to advantage. If larger work than cabinets are wanted, it is best to send them to some responsible copying house that makes a specialty of such work.

Never let a small picture get damaged or destroyed while in your possession. A customer never forgives such carelessness.

J. R. Swain.

DANA, Ind.

FAULTS OF PHOTOGRAPHS COPIED BY PAINTERS.

WE believe no intelligent person now questions the part that the photographic camera ranks among artistic instruments. The absurd query whether or no photography is art has lately, we are thankful to say, disappeared from photographic literature. Of course this query has nothing to do with our assertion that the camera has a recognized place among artists' tools. It is obvious, then, that the brain and the eye, which have been trained to proper perception of the beautiful, and the hand trained in transcribing it may indifferently use the etching needle, brushes and colors, or the camera. But in the latter case an important consideration enters. The camera as an instrument or artistic tool of greater complexity and (in some ways) of greater power, must be handled with precautions never dreamed of by those persons who have strictly confined themselves to the pencil, the brush, or the etching needle.

The routine manipulations of taking a photograph are notoriously easy ones; but things take on a very changed aspect when we come to consider the choice of a proper point of view for the camera and the proper lighting of the subject. We do not hesitate to say that faults in these two directions in photographic efforts have been and still are having a pernicious influence upon painting and other pictorial work made by hand.

This assertion is doubtless an unpleasing one to make, but it is so true that we need only refer our readers to any catalogue of modern paintings, where numerous cases will be noted in which badly selected photographs have served as originals for the painter to copy. We observe every fault com-

mitted by slouchy photographic workmen reproduced in the painting; foregrounds exaggerated and distances dwarfed; perspective false and violent-like photographs made with wide-angle lenses; unsightly objects of all sorts carelessly left in the picture; harsh contrasts of light and shade, such as are seen in under-timed plates. We might go on at length to particularize faults in modern paintings due to photography, but we will content ourselves by asking all of our photographic friends to remember that the influence of photography upon painting becomes more and more marked every year. We hope that they will feel alive to the responsibilities of their work, and that they will be as particular in their choice of subjects and lighting as they would be if about to paint a painting, and so give to the world works that will bear the impress of art-study, and that might well be copied by the painter.

Ellerslie Wallace.

PRINTING IN COLORS.

A PROCESS to print in colors is to be offered for sale, I have been told, as being a secret, and, of course, an entirely new one.

This process, which was devised by the Count E. Ogonowski, who published it *in extenso* in a pamphlet edited by Gauthier Villars, is somewhat complicated, requires some skill from the operator, but judging by the specimen I have seen, yields quite original pictures. I do not know whether it is sufficiently practical to be adopted by the professionals in these times of cheap-John photographs, but the amateurs will certainly try their hands at it and produce very good miniature-like portraits and effective landscapes in colors.

The process is as follows:

A proof is printed on plain salted paper, then toned in the usual manner by the gold acetate bath of L' Abbé Laborde. The print should be weak, and pushed to the violet gray in the toning bath. When fixed, washed and dried, the proof is colored with water colors, which, states the author, presents no difficulty if the paper is slightly moist. To that effect wet the paper, place it, image upward, on blotting paper, which will keep it damp from under, then sponge the excess of water from the surface with a rag free from fuzziness, and proceed.

When colored, the proof is floated on a salted solution of albumen:

Whites of eggs	100 parts
Ammonium chloride	4 parts

and when the albumen is dry, it is sensitized on a silver nitrate bath at 16 per 100 of water, allowed to dry, then by registering the colored image on the negative another proof is printed upon it, toned, fixed, and so on. The registering does not offer a great difficulty; it is often done for double printing.

As it is seen the process consists to print upon a colored photograph another one by using albumen as a medium to hold the silver chloride, and as the coloring consists of simple *washes*, it is the second proof which gives the modelé and the necessary contrasts to the whole.

The choice of the colors are necessarily of great importance; they should not be acted on by silver nitrate.

The vermilion, the chrome yellows, those of cadmium, flake white should be proscribed; they turn black in contact with silver nitrate.

Among the alinine colors the blues and greens can be employed, the yellows do not change, but they run out in contact with the bath. It is therefore preferable to use the moist colors for aquarelle.*

To replace vermilion one superposes a wash of lake on gamboge.

For the fleshes, use crimson lake, or madder, with gamboge, and diffuse a little lake in the moist tint for the rose of the cheeks, of the lips, the ears, the chin, etc.

Light hairs are colored with raw sienna and a little deep ultramarine; the brown and auburn with raw sienna, burnt sienna and ultramarine; the black by applying a wash of blue.

When finished the *photochromes* are dull, and should be burnished, or, much better, enameled by the gelatine collodion process. They are then brilliant; the image stands out well, and is really very fine.

P. C. Duchochois.

A Plausible Excuse.—"What is the charge against the prisoner, officer?"

"He stole an engraving."

"What have you to say, prisoner?"

"The force of habit, your honor. In my younger years I was a photographer, and when temptation came I could not help but once more practice the art of picture-taking."

* If the colors run out, it will be prevented by flowing the proof with a very dilute solution of India rubber in benzole before albumenizing. —*P. C. D.*

OUTLINES FROM THE LOG OF "THE HAPPY."

A PHOTOGRAPHIC CRUISE.

"THE craft had an air of something foreign
As she lay at the wharf among the rest—
The Care, the Strive, the Watch, and the Labor,
Familiar names that had stood long test.
Their ropes were all taut, their sheets full set,
Sailors in line, all ready to pull;
'The Happy' had not a man on deck—
What was to hinder her going to wreck?"



WE first saw "The Happy" as she sailed in Marblehead harbor, and we thought ourselves fortunate when we were invited aboard and shown the illustrated log whose outline sketches were the joint work of the skipper and his little wife. Pardon, please, the omission of all nautical terms in this paper. I know a boat from a train of cars, and that limits my wisdom, hence I do not know how much water "The Happy" drew, her length, or the names and number of her sails; but I do know that no happier people than the man and wife who made up her whole passenger list ever sailed in summer seas. We mistook them for bride and groom, till they told us they had been yachting in this way for seven or eight years. Then we reconstructed our ideas, and decided they were that anomaly among novelists, people of congenial tastes who had fortunately married each other rather than their counterparts. He sketched with a pencil, and she used a Scovill detective. They dropped anchor when they wanted to get a view of a cottage perched on a rock, or went ashore to wander through the quiet streets of the town when one or the other discovered some particularly artistic bit.

"He knows when he fails," she said, "but I am always in doubt. Tell me why a theoretically exact science like photography is practically for ever at loose ends? For instance, I have taken dozens of things which I can't show you. I used up fully half a dozen plates on surf snap shots. I waited more than once for the crest of a wave to break over me before I squeezed the bulb. I stood twice on exactly nothing at all to get the sea side of a rotten old wharf, and I made crabbing memorable to two distinguished Bostonians by asking them to pose on a pebbly beach, and apologizing later for the liberty by saying: 'I thought you were only men.' I have none of these things among my good negatives. Why is this always thus?"

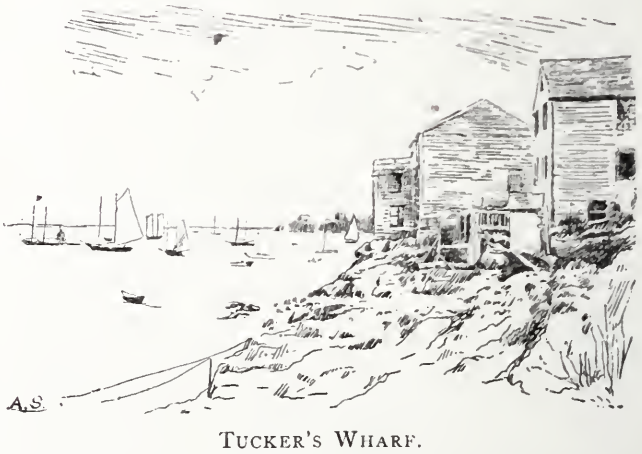
"Your question is like the nursery riddle about the splinter in one's finger," he answered. "You went out and found it without looking for it; you came home and had it without knowing it, and now you look and can't find it."

We laughed and begged to see some of the pictures which had been secured on plate and paper, and while he untied his portfolio she asked saucily: "Will you have the views thrown on the screen with or without a descriptive lecture?"

"With appropriate text," I replied, but others in our party demurred, saying it was like reciting a lesson with an open book in one's hand, to talk "guide-book" when we were anchored in Marblehead harbor, in full view of the old town and the Neck, as the narrow peninsula on which the cottages stand is called.

"Yes," he said, "it always seems a pity to me when any one says, 'what a pretty picture or story this or that would make!' It is an artificial way of thinking when one has the real thing without any making over."

"Ah," she said, "you forget the old sailor, who told you he had never *sensed* Tucker's Wharf till he saw my photograph of it."



TUCKER'S WHARF.

This seemed an excuse to learn a little about the town of only six or seven thousand inhabitants, called by natives *Mobblehead*, settled in 1629, and boasting itself to have been the first of American colonies to resist the tyranny of Great Britain. Six years before the battle of Lexington an attempt was made by English officers to impress the crew of the "Pitt Packet" into British service, and a desperate encounter took place in this now quiet harbor, in which the "red coats" were, happily, worsted.

"Show us the picture, please, teacher," said one of the skipper's audience in a mock Sunday-school-child tone.

"Over-exposed by a hundred years, my dear,"

was the answer, and unfortunately there were no views of the skirmishing of the privateers in these same waters in the war of 1812.

"We went one day to the old burying ground," he said, "but something funereal happened to all our views. It was too bad, for the site could not have been better chosen for photography if Daguerre himself had to be buried there. There used to be a meeting-house on the hill where the oldest head-stones are, and they say while one-half the congregation prayed the rest watched for the possible coming of hostile Indians."

"Much more interesting to me," she interrupted, "is old St. Michael's Church on Summer Street. You have a view from the corner of Summer Street, my dear, to show. I could not take the church because it is so shaded by trees. The interior is yet deliciously quaint although abominably restored, but the ancient reredos remains, and the chandelier, the gift of John Elbridge, Esq., of ye City of Bristol, 1732, and—and——" "My turn, if you please," he said, "I have just found the rocks you took because the 'screaming' woman was thrown overboard on them by the pirates. They cut off her hands when she clung to their boat, and every stormy night she screams. If we had had any flash lights with us, we would have taken her, but of course she doesn't show up in strong sunshine."

"But she still screams?" I asked, looking wistfully at the photograph of the rocks without her.



"She still has the last word with those pirates, seeing and being with or without hands, she had her tongue, and was but yet a woman," he answered, adding, "but I am not sure these are not the famous Workhouse Rocks, where the bottom of the mud-besmeared sloop came out when Skipper Ireson took his famous ride. You know Whittier wrote a poem blaming Ireson severely for refusing in 1808 to let his schooner 'Betty' aid a distressed shipwrecked crew, and praising the men of Marblehead for punishing him for his cruelty. Now it turns out——"

"That there was no Skipper Ireson?"

"Or no schooner Betty?"

"Or no shipwrecked sailors in distress?"

"No, but that Ireson was not to blame at all, and that his townsmen did him great injustice."

This whole affair having been a negative one from first to last, it was no surprise to us that neither pen nor sunbeam artist had made a positive of the locality, so we waited a while till a view of the harbor was finally exhibited. Longfellow says:

> "Not far away we saw the port—
> The strange old-fashioned silent town——"

but Longfellow was not a photographer, else with a short focus lens he would have found the town, as seen from the Neck, at the distance of half-a-mile, decidedly small and far away. A few clouds, however, helped out this plate, and rendered it decidedly the prettiest in the collection. She said she used a tolerable slow plate with a small stop and gave a time exposure.

Finally we begged to see some outlines of to-day's doings; but were snubbed by the answers which came from both:

"We don't sketch society for *Life*."

"We are not *Du Mauriers*——"

"We never take people——"

"We are not sufficiently altruistic to develop, print, mount, burnish and give away to people who only care for the personal side of photography."

"We work *con amore* and do as we please."

We were silent, but sorry. The Neck is crowded with summer visitors, the harbor is full of yachts peopled with joyous models, the rocks are covered with mushroom-like umbrellas under which lovers sit; here is the girl whose one remark appears to be "*please don't;*" and the man in knickerbockers with the racket in his hand and the bit of golden-rod in his button-hole, who replies——; but no matter—there were no outlines of these in the portfolio. Are these things hard to take, I wonder, or is there an indifference always on the part of one set of happy people on the subject of other people's joys. Are only the miserable curious and observing? Unless some one replies in THE PHOTOGRAPHIC TIMES Queries and Answers column I shall never know, for the outline exhibit is over, and the artists are gone.

> "Steady and safe they know not why,
> Her banner lighting the darkest sky,
> The 'Happy' sailed triumphantly."

Adelaide Skeel.

WHERE TO GO WITH THE CAMERA FOR A SUMMER OUTING.

THE season is now here when from Maine to California and from the Gulf to the international boundary line the army of amateur photographers will be on the lookout for a tramping ground.

When to go is next in importance to where to go with many, and once the when is arranged all that is necessary is to pack camera and camp outfit and take the trail for the wilderness. Where to go, however, is not so easily settled as when to go. Old places have become too well known. One is now afraid in the Adirondacks of running across a lisp and an eyeglass where a few years ago none but the hardy guide or his sportsman companion could be found. The Hudson has been photographed to death. Every town on the Mississippi has had its shadow fixed and even the far west has been made familiar of late years through the efforts of amateurs and travelers. Where to go, therefore, for something new is not so easily answered, especially when one has only a couple of weeks at his disposal. Now if the amateurs will listen to the advice of one who knows whereof he speaks it is more than likely they will never regret it.

In the first place, therefore, did it ever occur to you, Mr. Amateur, that north of the great lakes is a country as large as the United States, easily reached and boasting some of the grandest scenery on the continent. The Muskoka lake region is within about three or four hours' run of the city of Toronto, capital of the province of Ontario, the center of some thirteen railways. It is within a few hours' run also of Niagara Falls, Buffalo, Rochester, and the country to the south.

Next month a great international convention of teachers will be held at Toronto for which every railway on the continent has granted return tickets at single fare. The Canadian railways, anticipating a rush and bidding for a share of the patronage, have gone farther than ever in catering to the public pleasure and convenience. Excursions at very low rates have been made from Toronto to all the various resorts, and unlike former years the tickets will be good till about the end of September. Here, therefore, is a chance for the amateurs to secure a cheap outing and something new as well.

The writer spent five weeks on the Muskoka lakes last summer, and with his two companions (his chum and his camera) had a magnificent time. Beautiful islands and picturesque spots abound everywhere, and then the inhabitants have not yet learned the art of fleecing visitors; in fact, many of them absolutely refused to accept payment for little services that would be "put down in the extras" in more well known and frequented spots.

Any amateur thinking of spending his holidays in Muskoka can do so by addressing a letter to Mr. Barlow Cumberland, who being interested there will be glad no doubt to furnish information.

M. W. Fox.

Correspondence.

TO WORK OMEGA PAPER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have not used any albumenized paper for some time, preferring the chloro-bromide emulsion, or Omega paper. It suits my purpose admirably, being easier and quicker manipulated and giving satisfactory results. At first I experienced some trouble from air bubbles forming on the surface of the print, and they were troublesome to remove. I got over the trouble thus: I float my prints one at a time in the same way as I used to float my albumen paper in silvering it, then turn the face upwards and submerge them under the fluid; then brush the minute spots or bubbles with a flat camel's hair brush. I keep the bath in motion and the prints too, so as to not have one stick to another, there being about eight in at one time, and as one is finished I put in another, and so on until all are toned and fixed, then wash in running water for about three hours. If the water is muddy, as our's is often, I then take a tray of clean cistern or well water, and give a final rinsing in it. If the water is gritty or shows minute particles of sand in the print, I then take a rubber plate and with a flat camel's hair brush "wash or rather brush off their faces." Before squeegeeing them on rubber or tintype plates to dry, let them get leave to dry before attempting to pull them off the plates.

If these directions are followed almost any girl or boy can manipulate the paper and make good prints.

Very truly yours,

Thos. J. Bray.

WARREN, June 29, 1891.

The Scraf Camera is the invention of one Bloche, a Frenchman, and can be obtained for about $14. The camera measures about 6 inches by 4 inches, and is fitted with half a dozen sensitized plates, which revolve round an endless chain. It is attached to the scarf by an elastic band and a button. The lens, of course, is in the center of the pin, but it is such a small affair that one does not notice it. The pneumatic tube is hidden beneath the waistcoat, and the ball goes into the watch pocket. To take a picture, all you have to do is to get within three feet of your object, stand perfectly still and press the ball for two seconds. Then to bring a fresh plate before the lens, turn the button at the bottom of the scarf till a slight click is heard. One might take one's own portrait by putting the camera opposite one's face when sitting at a table and simply pressing the ball. The little pictures are a trifle larger than a postage stamp. A lady could wear the camera with a tailor-made dress. It is not a bulky article, and its weight only amounts to a few ounces.—*Boston Transcript.*

AN EXCEPTION.

A MAIDEN'S "no" creates a stir;
The worst of answers 'tis to give.
Not so with a photographer,
He doth adore a negative.

Notes and News.

George E. Hale, director of the Kenwood Physical Observatory at Chicago, was in New York last week.

The Portrait of Professor Charles Ehrmann, which Miss Catherine Weed Barnes made and sent to the Arch-Duchess of Austria, is to appear in the *Rundschau* for July.

The Annual Convention of the United Kingdom of Great Britain was held at Bath, England, opening Monday evening, July 6th, and continuing until the end of the week.

In Ellen Terry's London Home it is said that she has more than 3,000 portraits—photographs, sketches, paintings and prints—of brother and sister professionals.

Obituary.—Mr. E. J. Partridge, of Portland, Oregon, died June 30th, in San Francisco, after an illness of several months, of Bright's disease. For a number of years past he was the proprietor of a photographic supply house in Portland, Oregon. Eight years ago he was in company with his brother of Boston.

Mr. Partridge's photographic supply business will be continued as provided for in his will.

An Amateur Photographer went 30 miles out in the country to take some choice views, filled 50 plates, and found when he came to develop them at home that he hadn't opened the shutter of his camera. He had pressed the button, but for some reason it hadn't done the rest.—*Philadelphia Record.*

Mr. O. Pierre Havens, of Jacksonville, Florida, called at the office of THE PHOTOGRAPHIC TIMES, on his way to Saratoga Springs, where he spends his summers. Mr. Havens brought with him a magnificent collection of large (14 x 17) characteristic Florida views, which he recently made with a Morrison wide-angle lens on Carbutt and Cramer plates.

Photographing Old Charters.—A photographer called at the Comptroller's office, New York City, and took photographs of the Dougan and Montgomery charters for reproduction in a history of the city. The Dougan charter dates back to 1686. Both documents are kept in an antique-looking tin box in the large safe in the Comptroller's office.

To Photograph in the Dark.—Edison wants to invent a machine that will photograph in the dark, and he is working now on a scheme for such a machine. "It seems to me," he says, "that it ought to be possible to take photographs by a heat radiant instead of the light radiant now used. Maybe I can't do it, but I'm trying. I've succeeded in getting a plate that was sensitive to heat." In view of the wonders that he has done, who will dare say he will not do this?—*New York Sun.*

Locating Brain Tumors by Photography.—According to an eminent surgeon the location of tumors on the brain can now be detected by instantaneous photography. A tumor on the brain causes violent spasms by pressing on a nerve center, and while the patient is in the midst of a spasmodic attack he is photographed, the nerves affected determined by the contortions shown on the picture and the tumor located. Several successful experiments of this kind have already been conducted.—*Chicago Times.*

Geo. M. Allen & Co., art publishers, printers and stationers, have sold their art and publishing department to the Geo. M. Allen Company, who will continue the business at 94 Fifth Avenue. The business of photo-engraving, stationery and printing will be continued at 192 Water Street, by the new firm of Geo. M. Allen & Co., composed of Geo. M. Allen, general partner, and Geo. H. Allen, special partner. The affairs of the old concern will be liquidated by the said Geo. M. Allen, the payment of all indebtedness being guaranteed by the new firm.

A Menu Card Made by the Camera.—An enthusiastic amateur photographer employs a pretty process in producing a photographic menu card, so that when he gives a dinner he presents to each guest a photograph of the house in which they are sitting; or, if a picnic, photograph of the scenes they are going to visit. On this card also appears the menu and the name of the host and hostess. All that he does to obtain this result is to leave on the card a sufficient space to write the menu, and then prints the negative on a paper that takes ordinary ink. The cards are neat and instructive, and form valuable mementoes for each guest.

Mrs. N. Gray Bartlett, the well known lady amateur of Chicago, has won an international reputation as an amateur photographer. At the exhibition last month in Vienna, Austria, of amateur photographers of all lands, she had the distinction of having four of her pictures hung on the walls of the gallery.

A letter received by Mrs. Bartlett a few days ago from the president of the exhibition, congratulates her upon having so many of her pictures selected, and adds that every picture on the walls has artistic value. The officers of the exhibition have sent a request to her for copies to be placed on permanent exhibition at the royal art gallery and also for presentation to the royal patroness of the display—the Empress.

The Gundlach Optical Company, of Rochester, N. Y., has just moved into a fine new factory building at Nos. 171 and 173 Pinnacle Avenue. The company erected this building during the spring months and it is now entirely fitted up for their use. No pains have been spared to have the arrangement as complete as possible, and all the appointments and facilities are complete as can be obtained. In fact no factory in this country or Europe is in better condition for the manufacture of high grade optical instruments. The recent improvements in the photographic lenses made by the Gundlach Company have won for them a place high up in the estimation of all photographers, and it is with pleasure that we note this evidence of their prosperity. Long may it continue.

Portrait of Columbus.—An Englishman wants to sell a portrait of Columbus to the World's Columbian Exposition for $10,000. The portrait, it is claimed, was painted by Chevalier Antonio Moro, about 1570, from a miniature of Columbus painted from life especially for Queen Isabella, and which is still in the possession of the royal family of Spain. The frame of the picture, which was made at the same period the portrait was painted, is an intricate mass of carving and gilding, showing Columbus's coat-of-arms and the implements of maritime warfare at that time.

A Sun Cloud.—On the 12th of June, 1855, at noon, the *Democrat and Observer* made a photograph of the sun. Upon the negative appeared a luminous cloud with twisted arms. The photograph was submitted to Professor Langley, who pronounced the cloud a solar prominence of vast dimensions. This cloud was not seen at all with the naked eye, and it was photographed merely by accident, its presence not being suspected until the negative was developed.

On Tuesday, June 16, a luminous cloud was seen during an observation shortly after nine o'clock in the morning. This cloud was nearly round, scarlet in color, and was first seen just above the westernmost portion of the second group of sun spots counting from the sun's eastern edge. This group of spots had developed during the four preceding days, and was still changing form rapidly. The cloud moved westward and disappeared around the sun's western limb. It was seen on the western limb for some time, the portion lying against the sun growing smaller and smaller, like a planet at the end of a transit.

Photography and Surveying.—Lieut. Reed, of the United States Artillery, stated in a recent paper that photography has been largely used for surveying in Canada under the direction of Mr. E. Deville, the surveyor-general. The Dominion survey made in the ordinary way proved very expensive and slow when the Rocky Mountains were reached and photography was accordingly resorted to. The camera used, as described in *Engineering*, was a carefully made mahogany, brass bound, rectangular box, half-plate size. When in use it was placed on a tripod furnished with leveling screws, and leveled by means of two ordinary tube levels attached at right angles to each other, and which could be placed on that face of the camera which happened to be uppermost. The means for determining the horizon and principal lines were the images of four fine combs, one midway on each side, attached to the camera immediately in front of the plate, the use of small stops making these images clear. The lens used was a Dallmeyer wide angle, No. 1 A of 5¾ inches focus, affording a horizontal angle of 60 deg. when the plate was disposed with its longer edge horizontal Six double plate holders were employed. But one adjustment of this camera is required, namely, to insure the verticality of the plate when the tube-levels indicate that the camera is level. The best way to affect this is to substitute for the plate a good plane mirror, face to the rear; then set up a transit in the vicinity. The axis of the telescope being horizontal, observe a distant point intersected by the cross wires, also its image in the mirror: if the latter is also intersected, the mirror is vertical; if not, then the tube levels need adjustment. This box camera being rigid, and the focus therefore permanent and suited to distant views, and the lines on the faces indicating the field of view, no ground glass or cloth is needed. Care is taken to make the plate-holders exactly alike, a condition which, so far as distance from lens to plate is concerned, is ascertained by measurement. Orthochromatic gelatine plates give the best results. Mr. Deville considers that a survey made in this way is as accurate as a plan plotted with a very good protractor or made with a plane table. A good deal of attention has been devoted to the subject in France by Dr. Gustave le Bon, who has shown how to obtain all the survey details from a single photograph and one compass observation, provided any one distance contained in the photograph is known.—*Science*.

"**The Times** is full every week with matter of interest to photographers," asserts the *Portland Transcript*.

"'**The Photographic Instructor**' is one of the best elementary photographic text books that we know of," says the *American Amateur Photographer*.

The Badge of the P. A. of A. this year is a very neat bronze button with a most appropriate design. A buffalo in relief is artistically executed, with the letters "P. A. of A" above, and the date "1891," below. The form is after an antique coin with its irregular edges, and the whole makes a most pleasing effect. The artistic design was suggested jointly by President Hastings and Treasurer Carlisle.

Waterbury Cards.—When you are told by a dealer that another card is just as good as the well-known "Waterbury" brand, you may justly hesitate before purchasing. The "Waterbury" card is a perfectly reliable article which has stood the test of time and comes out triumphant. Do not be deceived by any one. Just ask for a sample of the "Waterbury" card, when some other brand is recommended to you, and compare the cards. You can then judge for yourself and be satisfied. If your dealer does not happen to have the "Waterbury" cardboard in stock you can always obtain a sample by sending to the Scovill & Adams Company.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

THE annual meeting of the above mentioned society was held at the rooms of the Geographical Society of Japan, Nishikonya-cho, Tokio, on Friday, May 29, at 5 P.M.

Mr. Ishikawa, having announced that he had received a note from Viscount Okabe, Vice-President of the society, who had been asked to preside, to the effect that he would not be able to attend, Mr. Edmond R. Homes took the chair.

The report of the Secretaries for the past year was read.

The balance sheet was read by the Treasurers, who pointed out that it indicated a decided advance in the prosperity of the society.

The election of officers for the ensuing year was then proceeded with.

With the exception of Dr. W. S. Bigelow, Vice-President, who has left the country, and M. J. Johnstone, member of committee, who resigned some time ago, on account of his not having time to attend to the work of the society, all the officers of last year were unanimously re-elected.

Proposed by Mr. W. K. Burton, seconded by Mr. E. P. Pallister, Mr. J. B. Rentiers was elected a member of committee.

Proposed by Mr. Burton, seconded by Mr. A. J. Hare, Mr. C. D. West was elected a Vice-President.

Proposed by Mr. I. Ishikawa, seconded by Mr. Hare, Mr. Y. Ishidzu was elected a member of committee.

A large number of samples of their manufactures that had been presented to the society by the Fry Manufacturing Co., of London, were distributed among the members present. Some excellent work, in the way of bromide prints and opals, done on certain of the samples by Mr. S. Kajima, were also shown. Mr. C. D. West had tried the plates, and had found them of very high quality. Mr. W. K. Burton showed some platinotype prints. These, he explained, had been done on paper that had been kept for more than a year, and that gave nothing but deep fog worked in the usual way. Excellent results had, however, been got by printing very deeply, then developing with a cold solution made up as follows: a 5 per cent. solution of washing soda, 20 ounces; a saturated solution of bromine, in water, 50 minims. He did not remember who had first suggested the use of soda as a developer for platinotype prints. The bromine had been suggested by Dr. E. Divers, F.R.S. It formed hypobromite of sodium with the soda solution, and this was a powerful restrainer of fog, in platinotype work.

Mr. K. Arito showed some prints on drawing paper that were of a remarkably fine black tone. They had been prepared by the following formulas:

SALTING SOLUTION.

Chloride of ammonium	50 grains
Gelatine	100 grains
Water	10 ounces

This was warmed, and 2 ounces of negative varnish were added.

SENSITIZING SOLUTION.

Nitrate of silver	2 ounces
Water	10 ounces

TONING SOLUTION.

Chloroplatinite of potassium	15 grains
Citric acid	50 grains
Water	25 ounces

FIXING SOLUTION.

Hyposulphite of soda	2 ounces
Water	10 ounces

The meeting ended with a vote of thanks to the officers for their labors during the past year, and to the chairman of the meeting just finished.

After this there was a conversazione.

High Art.—"I wonder why that photographer keeps his studio up on the tenth floor of that building."

"I suppose because he is a believer in high art."

The Editorial Table.

The Annual Index of periodicals and photographs for 1890, compiled by H. Snowden Ward, editor of the *Practical Photographer* of London, has been received, and certainly shows a great deal of research and industry on the part of the editor. America is represented, but of course not so fully as would be the case were an American the editor of this department. Numerous reproductions from the more notable photographs of the year have been made.

Photographic Printing Methods. By the Rev. W. H. Burbank. Third edition. Fourth thousand. New York: The Scovill & Adams Co.

The appearance of the third edition of this popular instruction book is certainly a strong proof of its value. The author may well believe that his book has proved useful and helpful to many, and it has therefore given a sufficient excuse for its existence.

No material changes have been made in this latest edition. Beyond the correction of the errors of the first edition, there has been nothing altered. The portrait of the author still appears as a frontispiece to the book, with a biographical sketch accompanying; and the beautiful bromide print, by the Eastman Company, from an American film negative by W. J. Hickmout, of Hartford, Conn., and entitled "Brook on Conway Meadows," which appeared in the second edition, also appears in this edition of the book. The price remains the same ($1, cloth bound), and will be sent post paid to any address on receipt of that price by the publishers.

Photographic Reproduction Processes, by P. C. Duchochois. New York: The Scovill & Adams Co.

This new book, by P. C. Duchochois, is a practical treatise on photo impressions without silver salts, for the use of photographers, architects, engineers, draughtsmen, and wood and metal engravers, and it contains all the processes employed to reproduce plans, designs, engravings, clichés on paper, wood glass and metal plates; also a complete description of the uranotype, and improved carbon processes. It is in every way a thoroughly practical book for the use of the profession, and should be in the hands of all who are employed in this important branch of photographic work. There is no other book published on this subject, and the present work is as complete a could be desired. It includes about 125 pages of instructive matter divided into two parts, with a complete introduction on the researches of Sir John Herschel on the action of light, with other researches and processes, and an appendix on various processes. The book constitutes No. 38 of the well-known Scovill Photographic Series, and is printed on excellent paper in the legible type which has made this series so popular with the fraternity. It is bound both in paper and cloth, and will be sent, post paid by the publishers, on receipt of the price. $1.00 in paper covers; library edition, $1.50.

"**The Acme Burnisher** gives satisfaction," says Sarony, the eminent photographer of New York; and the veteran P. S. Ryder, of Syracuse, says: "Am more than pleased with it. Without doubt it is the best burnisher in the market. It gives a beautiful polish and never gets out of order."

Albert Wunderlich's illustrated new catalogue of photographic supplies is very complete. It includes the illustrated price list of the American Optical Co.'s apparatus, Collins mounts, backgrounds, and accessories. A number of advertising pages are included at the end of the book and the Scovill Photographic Series is listed in full. We presume any one desiring a copy can obtain it by addressing Mr. Wunderlich, at 114, 116, 118 South 4th Street, Minneapolis, Minn.

MY CHILLUN'S PICTYAH.

AN EPISODE OF AMATEUR PHOTOGRAPHY.

Hi, chillun! What on earf dis mean dat yo doan ansah me?
Dem's de beatenes' lot o' chillun dat evah I did see!
I gin'ly has ter hunt fo' dem an' kotch dem on de fly,
Fo' do I sez de word mysef, my chillun's monstous sly.

Dar's Nancy, now, a-hidin' hind dat wood pile, like a fool,
An' heah comes Araminty Zoe a-kitin' back from school;
An' Zip done say dat he a-gwine a-huntin' cotton-tails—
Law! Dar dat boy now, sho's yo bawn, a-roostin' top dem rails!

Come down heah meejit, chillun, whar dese willer bushes grow,
An' stan' yosefs tegedder in a nice an' eben row.
Heah's man frum town dat wahns ter tek a pictyah ob yo all,
An' say he gib me one ter keep widout no cos' a' tall.

Now, doan yo stop ter wash yo hans or fix in Sunday cloes;
Man say he wahn yo come des' so, n' I reckon dat he knows.
Heah, Zip, yo stan' between de gals, an' stop dat pinchin' trick,
An' ef yo doan stop gigglin' so, I'll fotch yo all a lick!

Heah, Nancy, put dem hans o' yo'n togedder—jine 'em so,
An' try an look mo' sensible, like Araminty Zoe!
Yo spoze I wahn a pictyah fo' ter keep fru all my days
Wid chillun grinnin' out dey moufs in sich a foolish ways?

Now look des' war man tell yo tu; an' Zip, tuhn out dem toes.
What, tuk aready! Dat's quick as evah lightnin' goes!
I's mighty 'bliged, an' ohny wish dat hit mought so a bin
Yo hadn't tuk deir pictyah wid dat mos' owdashus grin.

But, after all, why mebbe hit might be des' full as well,
Kase when dey's growed, an' full ob cares, an' I might wahn ter tell
Des, how my leetle happy, careless chillun useter luk,
I'll go reach down de pictyah dat yo hab so kindly tuk.

ANNE V. CULBERTSON, in *Outing*.

He Gained a Customer.—Visitor: I've come in to see about some photographs. How much do you charge per dozen?

Photographer: Ten dollars.

Visitor: What! oh, it's too dark a day to sit for a photograph, anyhow.

Photographer: Oh no, there's such a bright expression on your face!

Queries and Answers.

99 JOHN S.: To decide a wager I ask: Is there a possibility to develop a gelatine emulsion plate with an acid developer, say the ordinary ferrous sulphate used for wet collodion plates?

99 *Answer.*—There is. Soak the plate for several minutes in a weak solution of silver nitrate, and develop with the usual iron solution acidified with acetic acid. Eder claims to have invented this method of developing, but others have made similar observations independent of him. Anyway, there is not much to be said in favor of it.

100 N. N. N.: Eikonogen developer in one solution as described on page 43, "Phototographic Instructor," produces often yellow stained plates, and sometimes the stain extends over the whole plate, and when dry shows on the surface iridescence. What is the cause of it?

100 *Answer.*—The one solution is too strongly alkaline when used in its normal state; dilute with 3 to 5 parts of water. To remove yellow stains as mentioned by you, wash the hypo from the plate and flow over it a very weak solution of perchloride of iron, to which the stains will readily yield.

101 L. W.: What exposure is needed for a Carbutt orthochromatic plate No. 23, Waterbury B lens, stop $\frac{f}{32}$, the subject, an open view of church and parsonage, surrounded by trees?

101 *Answer.*—In good and bright light, two seconds.

102 M. P.—Can you tell me how to varnish an unmounted photographic print? I do not want to enamel it, but wish to cover it with a protective, moisture resisting medium.

102 *Answer.*—Fasten the corners of the print upon a glass plate, and flow over it S. P. C. crystalline. This varnish dries quickly without heat, and makes a stratum impervious to water. When perfectly dry it is of glossy appearance.

103 WASH-OUT.—What is the best collodion sensitizer for photo-mechanical work, ammonium or cadmium iodide?

103 *Answer.*—Ammonium by all means. Cadmium thickens, or gelatinizes collodion very soon after being introduced, and that is a condition you should carefully guard against in all collodion used in process work.

104 A. M. A.: How many 4 x 5 Omega prints can be toned in one bottle of the combined bath prepared by the main features of the paper? 2. Are the tones attained absolutely permanent?

104 *Answer.*—1. From 60 to 80. 2. Read the article on the same subject in PHOTOGRAPHIC TIMES, vol. xxi, page 194.



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Proprietors
American Optical Company,
New York.

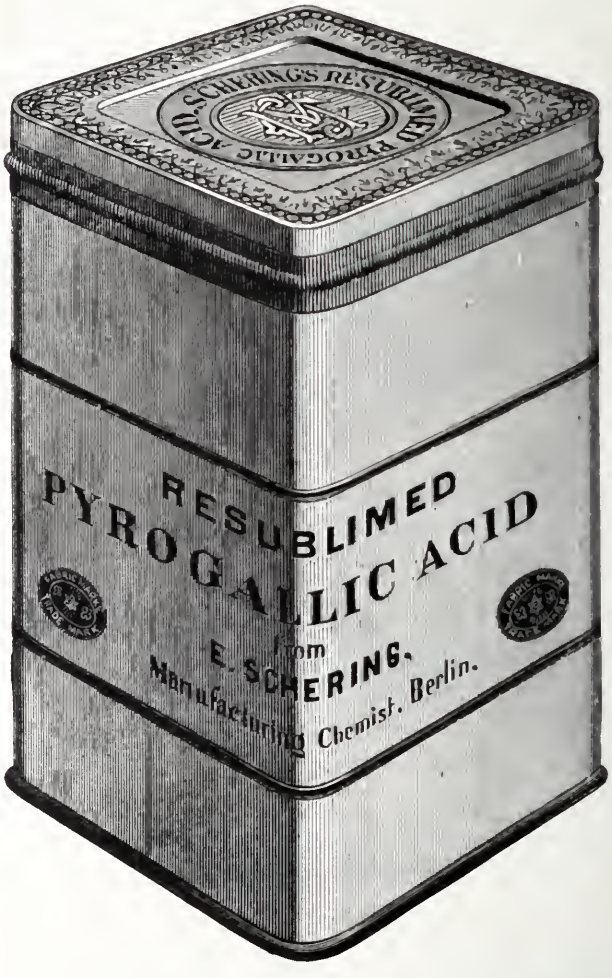
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PHOTOGRAPHIC DEPARTMENT.

Scovill's
Photo Apparatus Factory,
New Haven, Conn.

FOR SEVERAL YEARS PAST WE HAVE IMPORTED

Schering's Resublimed Pyrogallic Acid,

In ten pound cans, canning the smaller packages ourselves, as per illustration herewith.

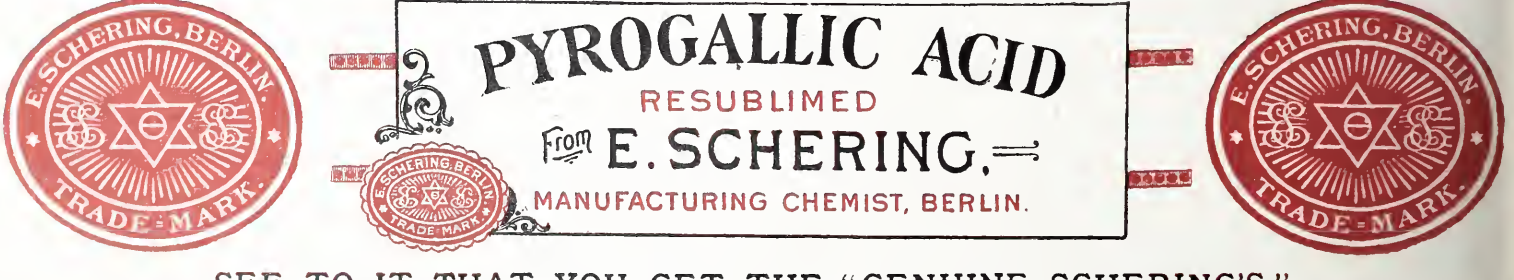


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(Vorm. E. Schering)

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THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year.....$5 00
" " " six months..... 2 50
" " one month's trial..... 50

Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
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Size of advertising pages, 6⅛x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion.....$20 00
Half page, per insertion..... 10 00
Quarter page, per insertion..... 5 00
Eighth " " 2 50
Business Notices, not displayed, per line..... 20
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

THE "HENRY CLAY" CAMERA.—This is a very compact and ingenious 5 x 7 camera. When closed there is nothing visible to reveal the fact of its being other than a handsome leather traveling case.—*The St. Louis and Canadian Photographer.*

THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC for 1891. New York: Scovill & Adams Company. Price, in paper, 50 cents; cloth, $1.

It is not every line of business that has as many attractive features to the average reader as are found connected with photography. At least so we feel, after looking over this business "almanac."

The handsome photos contained in it are alone worth the price to any one, while the technical information renders the volume of still greater value to the photographer; and who is not a photographer (amateur or professional), since dry plate negatives and handy cameras are so common?—*Meyer Brothers, Druggists.*

Business Notices.

CONVENTION NOTICE TO PHOTOGRAPHERS AND ARTISTS.—When you come to the Convention do not forget that we are only a few blocks from the Exhibition grounds, and that we will be pleased to show you our system and advantages in doing work for the trade. The Buffalo Dry Plate and Argentic Paper Co.'s Works are but a step from us, so you can call on them at the same time. In packing your valise, if you have anything in the line of prints, crayons, pastels, water colors, ink, oil, etc., that you intend having made, bring the negatives and a contact print from each, and we will make the enlargments in your presence, which will give you the opportunity to criticize. First come first served. Our office contains a full line of samples, so if you have not had any work done by us you can see the different grades and excellence of the work. Our motto is promptness and excellence, and we can show many letters which prove that it is being faithfully carried out.
IDEAL CRAYON CO., 573 Masten St., Buffalo, N. Y. Tenth door north from the street cars just before reaching the grounds.

"I AM constantly using the 26-inch Acme Burnisher awarded to me at Minneapolis, and it works like a charm," writes
"H. McMICHAEL, of Buffalo, N. Y."

WANTED.—To exchange, a No. 1 Kodak Camera, in good condition, for a camera in which dry plates may be used. Address
S. R. STODDARD, Glens Falls, N. Y.

FOR SALE.—The best studio in this vicinity, clearing $75 a month. Other business pays me better, and cannot attend to both. Cabinets, $4. Address
PHOTOGRAPHER, 356 Central Ave., Dover, N. H.

FOR SALE OR FOR RENT.—The only gallery in town of 25,000 inhabitants, nicely furnished and well equipped; splendid location and plenty of water. Will sell at a bargain. For information address Henry Frey, 421 Lackawanna Avenue, Scranton, Pa.

READ what the following well-known photographers say of the Acme Burnishers:

"HAVE used the Acme on all kinds of mounts, and on all kinds of printing. The tool has never failed to do its work perfectly; is easily managed; and though in constant use has never been out of order or given us any trouble.
"A. E. RHINEHART, Denver, Col.

BARGAIN! FOR SALE.—One 5 x 8 Blair Camera Company Single Swing Camera with one double dry plate holder; one 5 x 8 Blair Camera Company View Lens; one Blair Camera Company Tripod and Carrying Case. This outfit has never been used. Regular wholesale price $10.50. Will sell for $8, net. Address
L. A., Care of THE PHOTOGRAPHIC TIMES,
423 Broome Street, New York.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
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"PHOTOGRAPHY AS A BUSINESS." Cloth, 75 cents; paper, 50 cents.
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BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

"I TAKE pleasure in saying the Burnisher gives entire satisfaction. The Thermometer is a great convenience, preventing as it does against overheating and the consequent spoiling of prints. It is by far the best Burnisher I ever owned.
"J. E. HALE, Seneca Falls, N. Y."

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co. and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
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BUCHANAN, BROMLEY & CO., Philadelphia.

"THE Burnisher is working to my entire satisfaction. I prefer it to others I have used. It heats evenly and quickly. In fact it is a good machine all through.
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Full directions accompany each set. In three sizes, viz.:

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FOR SALE BY ALL DEALERS.

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A good man to take charge of my gallery permanently, must be a first-class operator and retoucher (no others). Good wages to the right man. Gallery is situated in Brooklyn. Address Fuller, care of this office.

Immediately, a competent retoucher and printer. Apply to John Rippel, Milton, Pa. Give reference and salary expected. Do not apply unless you can fill the bill.

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Read this:— BROOKLYN, N. Y.

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Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

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Are all branches to which special attention is paid, and for the requirements of which no expense has been spared in order to perfectly equip our establishment.

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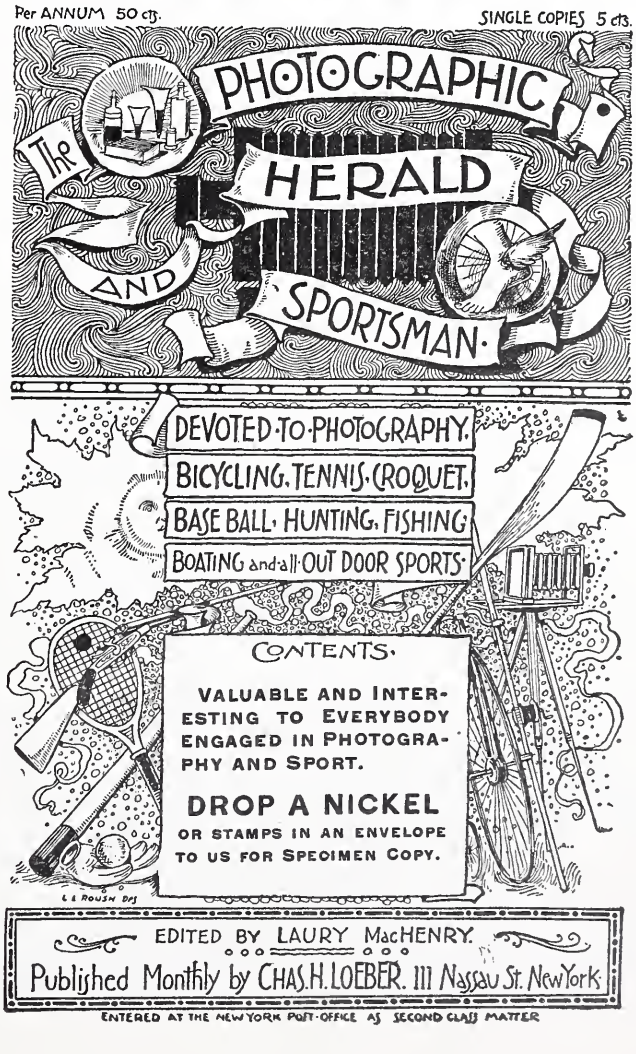
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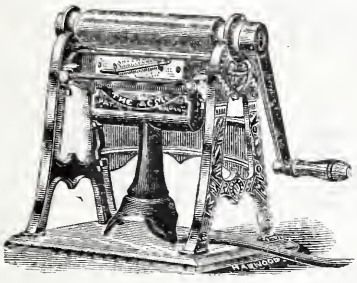
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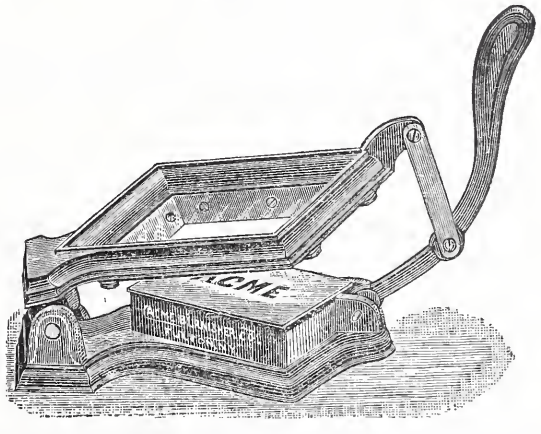
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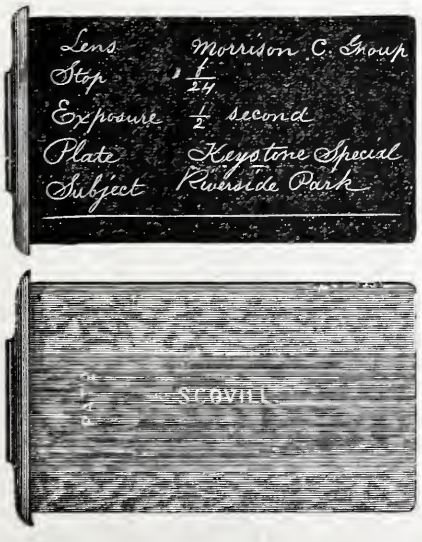
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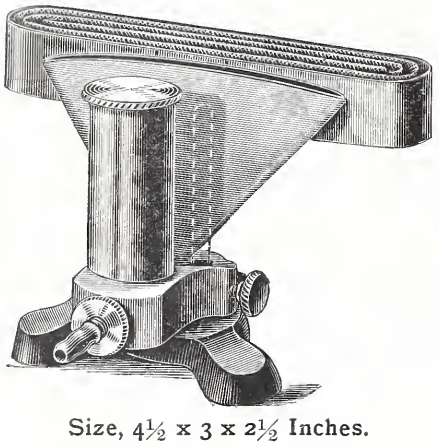
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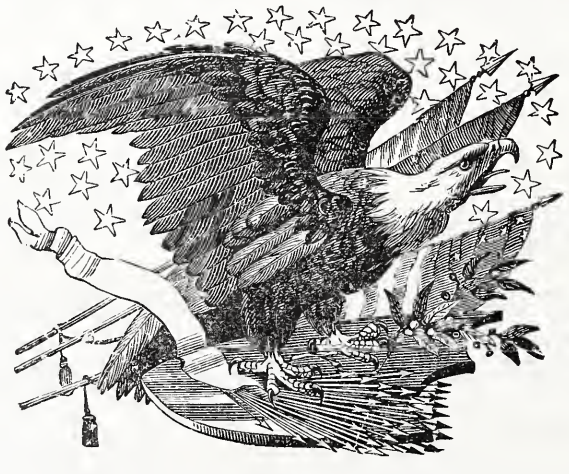
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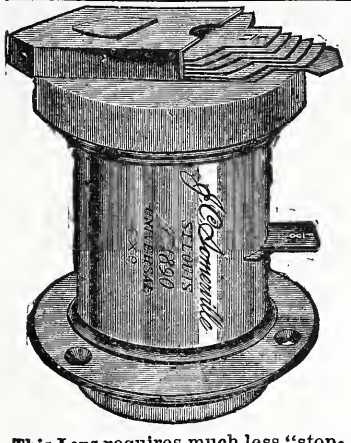
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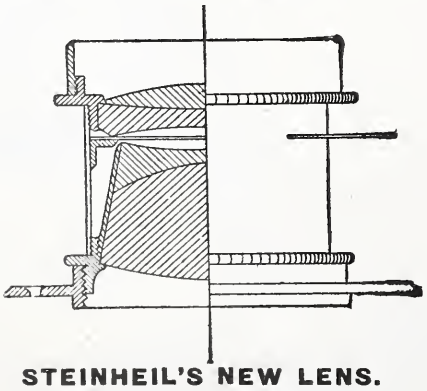
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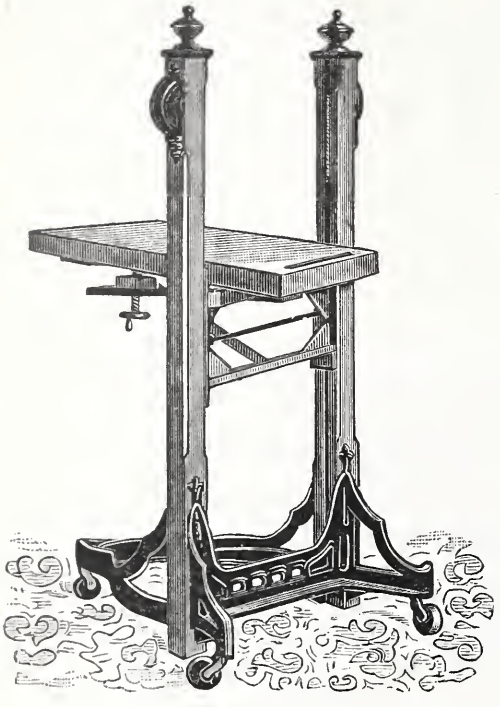
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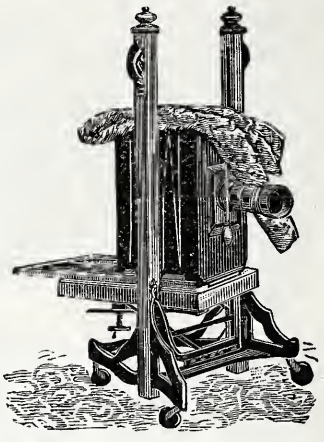
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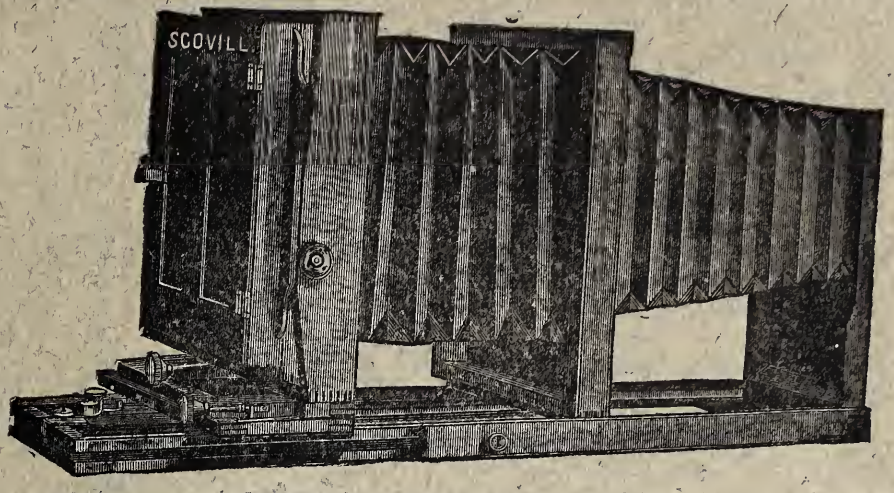
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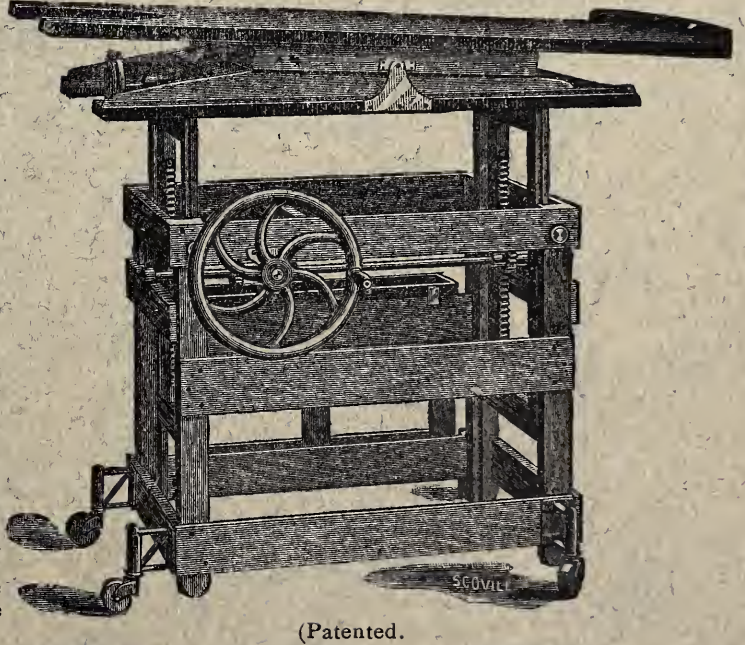
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The Canadian Fall.



"The emerald wall of the Great Horseshoe."

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JULY 17, 1891. No 513.

THE CANADIAN FALL.

IN the Christmas number of THE PHOTOGRAPHIC TIMES for 1888 we presented our readers, among other illustrations, with a picturesque view of Niagara Falls in winter, from an excellent negative by John E. Dumont, of Rochester. We have now the pleasure of giving them an equally pictorial view of the Canadian Fall, from a negative by Ernest Edwards, President of the New York Photogravure Company.

Those who are in attendance at the Convention of the P. A. of A., in Buffalo, and will participate in the excursion to the Falls, will be especially interested in this artistic view of the Canadian Fall.

The excellent photogravure, while rendering the negative in a most satisfactory manner, does not reproduce the "emerald wall of the great horse-shoe," though those who have beheld the gigantic cataract itself can easily supply the color by looking at this photographic reproduction. The margin of trees in the foreground gives distance to the Falls and proves a pleasing innovation, though somewhat diminishing the apparent height of the cataract. Altogether this view of the Canadian Fall, though somewhat unusual, is very satisfactory, and will make an appropriate companion to the Niagara in Winter presented in these columns in 1888, and an interesting souvenir of the Convention now being held at Buffalo.

THE CONVENTION.

THE twelfth annual Convention of the Photographers' Association of America is now being held at Buffalo. The indications point to a successful Convention, both as to numbers and the interest and value of the various exhibitions. The papers to be read are on practical subjects by well-known photographers. We give our readers one this week.

Others will be published in our next issue, together with the President's report, the report on the progress of photography and our editorial report of the proceedings. Succeeding issues will give our readers faithful reports of all that occurred at the Convention which is of any value or interest. Being a weekly magazine we can do this before our readers could obtain the information from any other source.

PHOTOGRAPHING LANDSCAPES BY MOONLIGHT.

THE many fabulous stories told about moonlight photographs, the incredulous short time of exposure occasionally alleged as sufficient to make them, a few very remarkable facts having come lately to our knowledge, and the desire of several of our readers to learn of the experience of others regarding moonlight photography, have induced us to explain, to the best of our ability, what the light of our satellite is really able to do photographically, and what it is unable to do.

Owing to the extremely feeble actinic force of moonlight it is impossible to obtain instantaneous views by its aid, and a fully exposed negative can be obtained only by large apertures of lenses of great luminous power, and by long exposure upon highly sensitive plates.

To make pictures by the aid of moonlight is nothing new, the first experiments made dating back to the earliest times of daguerreotypy, and the first moonlit picture exhibited publicly was a white marble bust by Breeze, at the London Exhibition of 1851. On account of technical difficulties resulting from long exposures on wet collodion plates, the attempts made then were but rarely successful, and only after the introduction of collodion dry plates were more satisfactory moonlight pictures really possible.

The first moonlight photograph we ever attempted was that of a white painted frame house, with an exposure of three hours upon a Sutton collo-

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dion honey plate, with an 8-inch focus single achromatic lens, stop F 16. Result: a very faint image after a long and tedious development with pyro. Later, much better success was had with a view of a brick house, a Fothergill plate, the same objective and stop as before, and an exposure of from 8 P.M., perhaps, to 5.30 A.M., in the light of the full moon of a bright November night.

Burton states positively that to photograph a landscape illuminated by moonlight requires from 300,000 to 3,000,000 times longer than the same landscape illuminated by sunlight. E. Von Gotthardt indorses what Burton says, and speaks of these facts more definitely when describing some experiments he made. To convince himself of the impossibility of certain claims, he exposed first highly sensitive orthochromatic plates, with a No. 1 Euryscope full aperture for three and five minutes, upon a moonlit landscape, without any result, and forty-five minutes produced a very much under-exposed negative; double, and more than double the time presumably being required to make a perfect negative. The experiments were repeated in full sunlight, the lens stopped down to its smallest aperture, and all other conditions being the same, a beautiful and perfect negative resulted from an exposure as quick as could be made by hand.

Von Gotthardt now reasons thus: Supposing the sunlight exposure had been 0.5 of a second and the stop used had allowed but $\frac{1}{2^{4}}$ part of the light to act which acts with the full aperture, and further supposing that 100 minutes = 6,000 seconds in moonlight, would give with the full aperture the same results as obtained in sunlight, that is with the smallest stop in 144,000 seconds, we must then deduce that sunlight is $144{,}000 \times 2 = 288{,}000$, or in round numbers 300,000 times more intense than moonlight.

Eder speaks of an experiment by which he found the intensity of moonlight to be 6,000 times weaker than that of a magnesium wire burnt in the focus of a concave mirror, and states further that he had made a moonlight landscape by an exposure of three hours upon a plate, 20 deg. Warnerke, with a Steinheil aplanate, stop $\frac{f}{10}$.

Henderson, under conditions similar to those of Eder, exposed for seven hours, and Jahr had perfect negatives in eight and nine hours.

Dunmore obtained a very rich and harmonious moonlight landscape in five hours, and it is said that Colard and Holmer had the same results in from one to two hours, while Causson & Co. exposed for thirty minutes with the full aperture of a portrait lens. The great difference of the times of exposure stated is owing mainly to the different forms of the objectives employed and their focal length, but is not at all contradictory to the principle laid down by Von Gotthardt. Causson & Co. used a portrait lens and Jahr a Dallmeyer rectilinear, both with perfect success, it is said.

Our latest attempt to make a moonlight picture was by the full moon of last August, the object being a white building surrounded by trees at a distance of about two hundred yards. The plate, a Carbutt Eclipse, the lens a Gundlach rapid rectigraph No. 3, stop $\frac{f}{11}$. A heavy bank of clouds coming up the horizon interrupted the exposure, intended to be seven hours, and but ninety minutes were given. A tedious and long-continued development with hydrochinon produced the outline of the landscape, and but a feeble impression of the white building.

For scientific purposes, and as a technical object lesson to the photographer, the attempts at making pictures by moonlight are very instructive perhaps, and are otherwise interesting; but artistically they do not amount to much. Light and shade are not distinctly defined, as the motion of the moon obliterates all artistic effect in the prolonged exposure, and the finished picture reminds one of the works of Chinese artists, totally devoid of details, as well as of light and shade.

Moonlight photographs with distinctly pronounced shadows are impossible, and those claiming to be so are invariably made by daylight produced by a variety of clever printing and other dodges, and may be very beautiful, so far as the moonlight effect is concerned.

CHAUTAUQUA LETTER.

THE classes of the College of Liberal Arts, those of the Normal Hall and all special classes, have been organized this afternoon and will be open for the reception of students on Monday, the 6th. The School of Photography, as usual, is in advance of all others, having been opened on July 1st as advertised. She commences her sixth year of practical work under Chautauqua authority, and under much better auspices than ever before. Our schoolrooms have been much enlarged. An annex to the laboratory, furnished with satisfactory working facilities, has been built; the skylight for portraiture and reproduction work has been improved, and an excellent arrangement is being made for the making of lantern slides.

Very extensive alterations, and in the majority, improvements, have been made on the grounds since

last year. Several new buildings, among them the Arcade, Presbyterian Headquarters, a printing office, and a large hall for Delsarte and the cooking school have been erected; roads and bridges have been repaired, and everything looks bright and pretty.

The Arcade and Delsarte buildings have been painted yellow, orange and red, possibly with the intention to have Carbutt's orthochromatic plates subjected to a crucial test; and to cap the climax the roofs have been colored a bright green. I have been told this green is a chemical compound, protective of the wood shingles. Presbyterian Hall is painted with dark Indian red, monotonous all through of the most somber hue, and without any relief whatever. Of the Arcade I have made a good negative on a Carbutt orthochromatic plate, and the plate and John Carbutt came out triumphant.

The popularity of the optical lantern grows in Chautauqua from year to year; many illustrated lectures are on the programme; outdoor exhibitions will be given by a graduate of our school, and almost every student entering the class does so with the intention of learning how to make his own slides.

Our rooms are adorned with many handsome photographs, contributions from professional friends, many photogravures and autotypes, portrait studies from a Vienna friend, and reproductions of fresco paintings from Weimar; but the most interesting part of our exhibition are the specimens of work by students. Of these the land and sea scapes by Mr. and Miss W., of Connecticut, deserve particular notice, the platinum prints of Mrs. W., landscapes of Mr. W. and genres of Miss C., all of New York, and the large collections of S., of Michigan, and Miss E. M., of Massachussetts. In a later letter we may describe them particularly.

The majority of students enrolled so far are well advanced in photography. Three of them are old friends and students of former years. These devote themselves to special branches; some take up lantern slides exclusively; others orthochromatic work, and I had the applications for the practice in kallitype printing, which I am fortunately well prepared to teach. Members of the class in geology learn photography to assist them in their particular studies.

Very little work has been done so far. Ever since we opened it has rained incessantly and in torrents; a cold northwest wind sweeps through the forest, and it is almost impossible to plant a tripod firmly enough in the ground. Nevertheless we all have employed our time profitably, by setting our house or rooms in perfect working order and by conversations on photographic topics or direct theoretical instruction.

As soon as clear weather sets in we shall meet on every available point a multitude of diligent photographers, armed with the handy little Knack, the stately Triad, an Albion or the Irving—of all of which I will endeavor to speak in my next letter.

Charles Ehrmann,
Instructor C. S. of P.

Assembly Grounds, July 4, 1891.

THE CHEMISTRY OF SILVER PRINTING.

CHAPTER I.

(*Continued fom page* 344.)

Printing on Matt Surface Paper.—The reaction against a glossy surface has lately led to a return by many workers to the practice which was universal before 1852—the printing in silver upon "mat" or "dead" surface paper.

The paper must be *pure.* Especially it must be free from chlorine and also from hyposulphite of soda, which is largely used by paper-makers as an "anti-chlor" or substance to remove the chlorine. Almost any good white paper will answer the purpose. Recent researches have shown that it is hardly possible to purchase a sample of paper which does not reveal the presence of "hypo" when delicate tests are employed. This is much to be regretted.

The effect of printing upon paper with quite a rough surface has, during the last year or two, been much admired. For such an object, Whatman's drawing-papers have been used; and Mr. Lyonel Clark* recommends the paper sold as "Arnold's pure unbleached."

The paper may, or may not, require *sizing.* Blotting paper is unsized; while some varieties of glossy writing paper are nearly all size. The *rough* paper will certainly need sizing, and may be passed through a warm solution of gelatine of the strength of from 12 to 24 grains per ounce of water. It must then be hung up to dry.

The next thing to do is to *salt* the paper. For this purpose float the dry paper for three minutes on—

Ammonium chloride	130 grains
Sodium carbonate	3 grains
Water	1 pint

Hang up to dry in a warm room.

Sensitizing with Ammonio-Nitrate of Silver.—To

*Salting and Exciting of Drawing and other Commercial Papers: *Camera Club Journal*, January and November, 1890.

sensitize this paper we may use the ammonio-nitrate bath, first recommended by Dr. Taylor in 1841; and improved by T. F. Hardwich in 1855. It is especially useful for weak negatives and for printing in dull weather.

Dissolve 60 grains of silver in half-an-ounce of distilled water. To this add ammonia, drop by drop, until the black precipitate at first formed is just redissolved. The liquid should be stirred continually with a glass rod.

Divide the solution into two parts, and to one part add nitric acid, drop by drop, until the color of blue litmus is just changed to red. Then mix the two parts together, and add enough water to make up to 1 ounce. Filter, if not perfectly clear.

How to apply the Ammonio-nitrate Solution.—It is best to apply this sensitizing solution with a *brush.* A camel-hair brush may be used, but it soon becomes spoiled and useless. The best method is to use a "Blanchard's Brush," named after its inventor, the well-known English professional, Valentine Blanchard. It is made by folding a double thickness of swan's-down calico over the end of a strip of glass from three to six inches wide. The calico must be tied on, or secured to the glass by a rubber band. A pool of the sensitizing solution is poured on one end of the sheet of paper (laid on a flat surface, as a sheet of glass), and this is led over the paper with the brush. The paper should be thoroughly moistened in every part with the solution. It may lie for a minute to allow the solution to soak in, and should then be hung up near a fire to dry.

This paper will keep for a week or two if preserved between sheets of soda blotting paper.

Action of Light upon Sensitized Paper.—When "sensitized paper" is spoken of in photography, the ordinary albumenized paper containing chloride of silver (plus a little silver nitrate) is always meant.

When such paper is exposed to light its white surface is gradually changed in hue, passing through various shades of brown, gray, and violet, to a brown or violet-black.

What is the precise chemical change produced by the action of light upon the silver chloride? That has long been—and still remains—one of the puzzles of photographic chemistry. The subject is treated of in greater detail in discussing the "latent image;" but it will suffice here to say that in the present state of our knowledge the following equation represents more nearly than any other the probable facts.

$$AgCl = Ag_2Cl + Cl$$

Silver chloride, *when decomposed by light, produces* silver sub-chloride *and* chlorine.

Chlorine is undoubtedly given off—Scheele proved that in 1777—but whether it is entirely or only in part separated from the silver is still doubtful.

W. Jerome Harrison.

(*To be continued.*)

ON HAND CAMERAS.

THE manual furnished with the kodak camera says emphatically not to interfere with or change the speed of the shutter from the position in which it is placed when adjusted at the factory.

Now, my experience leads me to believe that I cannot raise mineral wool on a "hydraulic ram," and I have also discovered to my cost that I cannot make all kinds of exposures with one speed of shutter. The lens and the film are a known quantity, and not variable to any appreciative degree; but the light and the object are uncertain and variable, and indeed so much so that the same objects or views cannot be photographed in the same time, or at same speed of shutter, at different times of the same day.

I have lost hundreds of negatives by obeying the instructions given in the manuals. I have learned that to make successful hand camera pictures the speed of the shutter must be changed to suit the light and the amount of light reflected from the object, and that well-lighted land or water scapes may be taken with a very quick shutter and short exposure, whereas a sorrel horse on a green grassy plot with a red barn as a background would be much under-timed, and would be a failure if taken with the same exposure as the former; hence considerable judgment must be exercised in order to do good sharp brilliant work.

This may appear a small matter from a superficial view of it, but I am satisfied in my own mind that many thousands of kodak and other hand camera negatives are wasted on this account.

The lenses on the larger kodaks are good, quick, sharp, cut well, and are rectilinear; consequently capable of doing good, effective work, and with the exercise of a little thought and the adjustment of its difficult elements to the requirements of the case in hand a satisfactory performance can be assured.

The foregoing applies to all shutter work, which condensed means over-expose a trifle rather than the other extreme; hence slacken the speed of the shutter, giving a longer exposure.

In photographing objects in motion, or rather those moving rapidly, the speed of the shutter

must in these cases be accelerated in proportion to the speed of the object to be taken.

Neither must hand camerists be led away with the idea that some have, that by the use of powerful reducing developers they can produce a good negative from a much under-timed exposure. I don't believe it possible. I have failed time and again, and have quit trying. The picture is made by the action of light, and only *brought out* by the chemicals in the developing solution, therefore the plate must be subjected to the action of a sufficient amount and quality of light passing through the lens and refracted on the sensitive film.

Whenever possible use a slow plate, or film, a quick lens, and a slow shutter, or, in other words, "give the light a chance."

Thos. J. Bray.

THE OPTICS OF THE LANTERN.

[A Communication to the London Camera Club.]

From the canal boat to the White House is a transition not any more pronounced than is that of the lantern of half a century ago to that of the present period. *Then* a wonderful magical toy; now a philosophical instrument replete with huge possibilities of education, art, and amusement.

Some time since, Mr. Pringle discoursed before this club of the lantern: its illuminants, mechanics, and applications. The duty assigned to me to-night is one of much narrower scope—its optics—and to this theme I shall confine myself as strictly as possible. Lantern optics take cognizance of the light, from its genesis at the lime or other radiator, to its ultimate destiny or termination on the screen, these termini constituting the alpha and omega, or, in optical parlance, the conjugates of such optical system as may intervene.

I shall assume the existence of the light which, for the sake of simplicity, may be that emitted from incandescent lime. Now, as its rays radiate in every direction, the first consideration is the collecting as many of these as possible, and causing them to travel in just the direction we desire. If only a few of them—in other words, a narrow angle of illumination—be our requirement, the problem of their forward transmission is one of extreme simplicity; but if, on the other hand, the greatest possible angle of illumination be the desideratum (and of course this is the case), then does the problem become slightly more involved. We cannot here institute a comparison between the methods adopted by lighthouse engineers in utilizing all their light and those demanded by the lantern, for in the latter case it is to be employed in the formation of an optical image, whereas in the former it is merely projected into space, and both direct light from the radiant, together with that reflected from either a holophotal or a parabolic reflector, are available. But, while we cannot utilize so much of the light as in the lighthouse, we can use it to much greater advantage for our special purpose.

We now inquire the greatest angle of light possible to be got advantageously through a condensing system, for this lies at the root of the whole matter, and in doing so have to ascertain how near can the light be approximated to the first surface with safety. From innumerable trials with lenses of a thickness not too great and set with such a degree of looseness in the brass work as not to be cell-bound, I find that two inches may be considered as quite safe. When condensers crack it is usually the result of their being too tightly burnished in their cells, brought too suddenly under the influence of the heat of the radiant, or being subjected to currents of cold air. I assume, of course, the perfect annealing of the glass of which they are formed. When this last point is dubious, it may be well to adopt the system employed by the Scotchwomen of a former period, who, when laying in a supply of tumblers intended for whisky toddy, invariably placed them in cold water, which was slowly brought to a boil, and then allowed to cool slowly, by which treatment immunity from subsequent breakage was believed to be insured.

At this stage we proceed to analyze the functions of a lantern condenser, so called. We find that these are: first, the collecting, and second, the condensing of the light. Of these the former is much the more important. What we wish done is the collection of so many rays as to form a large angle, and their projection forward in as near an approach to parallelism as possible. Absolute parallelism cannot be obtained unless the flame were a point, instead of being as it is, a disk or patch having sensible dimensions of, say a quarter of an inch upwards.

Some of the cheap French condensers (of which I would not speak disparagingly, for they render excellent service and are marvels at their price) transmit an angle of light of from 40 to 50 deg., and a higher class of London-made articles claim, I understand, to embrace 60 deg. But, by a slightly increased expenditure of optical means, it is possible to increase this angle to 95 deg., which, I need scarcely observe, somewhat more than doubles the intensity of the illumination. Let us see in what way this is to be accomplished.

Kepler's law, as you all know, is that the focus of a plano-convex lens equals the diameter of the sphere of convexity. This is, of course, for parallel rays, and it is those we are dealing with at present; and we are also dealing with plano-convex lenses, these being the best for condensers, subject perhaps to a slight hollowing of the flat surface, of which I shall soon speak. Well, it is very evident that, if we desire a large angle of light, the single Keplér won't do much for us, unless, indeed, it was made enormously thick—even hemispherical—when we would encounter two evils: first, the enormous spherical aberration consequent upon transmitting light through a bull's-eye; and, secondly, the proximity of the said bull's-eye to the radiant, which not only emits light but heat—a heat which would quickly cause our bull's-eye to see stars and stripes. How, then, is it to be accomplished? By borrowing the ideas of the microscopist. Did any of you ever hear of a microscopic objective of even the most distant pretensions to wide angle being composed of one lens? Can you conceive of such a thing? Well, no more is it possible in our collecting system, which is analogous. We must have, at least, two lenses for our purpose. One of them—that nearest to the light—must be 4½ inches in diameter in order to catch up the 95 deg., of which I spoke. But this cannot render the rays parallel; still, it transmits them to its colleague under such circumstances that *it* does so, the two lenses thus doing what no one singly could effect.

[The lecturer here submitted drawings made to scale, and transferred them to the blackboard.]

The first lens of the collecting system is comparatively thin, which, apart from any optical advantage, is useful in this respect, that it has to bear the first impact of the heat; and, as you can readily understand, this lessens the liability to fracture. It is only 16 mm. (⅝ inch) thick in the center, is 8 to 9 inches focus, and is formed by preference of flint glass. The second element is 5 inches in diameter, and, the radius of curvature being rather shorter, this, combined with its greater diameter, causes it to be proportionally thicker, being 28 mm. (1 1/16 inch) at its center, and 7 inches focus. This lens, too, should be made of colorless glass. The loss of light from absorption is but little, and I anticipate an objection that might be suggested as to that from oblique incidence. This is really so little as to be unworthy of notice, but it carries with it its compensation; for it occurs most at the thinnest portions of the lens, where there is the least absorption, and thus aids in insuring uniformity of illumination throughout the entire beam. But it may be reduced by rendering the first surface concave instead of plane, and retaining the balance of power by grinding the back surface on a tool of shorter radius. I at one time was madly in love with the meniscus form of lens for this purpose, but incited thereto by the experience of Dr. H. Morton, and after many trials with lenses, both plano and meniscus, and formed of different kinds of glass, from St. Gobain's crown to English flint, I arrived at the conclusion that the plane surface answered every purpose in an effective manner.

J. Traill Taylor.

(*To be continued.*)

SHUCKS.

[Presented at the Buffalo Convention of the P. A. of A.]

In the dawn of this effusion
I will say right here, and boldly,
That I purpose to be solemn,
What the girls call nice and stupid;
For a flitting cloud is grateful
Sometimes on these bright occasions.
We all know a picture cannot
Be all light and be effective,
But that shadows lending contrast,
By their very gloom and darkness,
Serve to give the lights their value:
So, though I am voted tiresome,
If I serve the other speakers
As a foil for their resplendence
I shall be content and happy.
Should you ask me, what in Heaven's name
Made me put this thing in meter—
Following after Hiawatha,
In the dim and misty distance—
What possessed me to imagine
That such monstrous innovation
Would find tolerance or favor
In P. A. of A. Convention,
I should answer—I should tell you
That this august, solemn body,
In Convention back some three years
Took this charming Indian idyl
As a subject to illustrate;
And that our distinguised brother,
Dwelling in southeast Ohio—
In the town of Cincinnati—
Known throughout this widespread country,
Known across the broad Atlantic—
Known to all men is James Laudy—
Made such charming story pictures
Of this Song of Hiawatha
That he was proclaimed the victor,
And departed with the trophy
Offered for these illustrations:
And that ever since, whenever
We have held our yearly camp fires,
Has the ghost of these wild legends
Hovered round our solemn councils—
Lent to our deliberations

Something weird, and vague, and shadowy;
Interfering much with business:
So I thought if I could make a
Muse of this perturbed spirit,
Give it scope to have its day out,
I might lay the spook for ever.
Well, so much by way of preface.
Now, if you'll glance backward with me
To the early years of forty,
We shall find things much in this wise:
In the large towns and the cities
Of this prosperous growing country,
Up in lofts and dingy attics,
Reached by stairways dark and dirty,
Standing by an antique camera,
Clad in raiment soiled and shabby,
Might be found the picture-maker.
Glancing round the fine equipment
Of the place might thus be noted:
There were backgrounds, two in number,
A white cotton stretched on framework,
And another, dark in color.
Which came forth from grandam's dye pot
A reflector of white cotton,
A three-legged, iron head-rest,
A round telescopic table
With a variegated cover,
To support the sitter's left arm
And lend grace to the position.
Posing chair with frayed flag bottom—
Probably a bargain purchase—
For the sum of three-and-sixpence;
And a strip of bright-hued oil-cloth
Served at once for full-length figures
And the purpose of adornment.
Round the walls there sparsely dangled
Images on polished silver—
Half the size of pocket prayer books—
Images of solemn visage,
Showing, by their awe-struck faces,
That to have their pictures taken
Was no light or frivolous matter.
By a nail and string suspended
On the street-door hung the samples,
In veneered mahogany framework,
Such as ancient looking-glasses
Had, in days before our fathers;
Samples numbering, say, a dozen,
Held in place by wooden sash-bars.
A sign also bore the legend
That in regions far above them
On the top-floor was a *gallery*.
I suppose it has sometimes happened
That some very cultured people—
People of æsthetic notions,
Such as they who dwell in Boston,
Or perchance in this fine township,
May have marveled, may have wondered
Why a name that's so pretentious—
Such resounding appellation—
Should describe a cock-loft workshop.
To such stilted, buptious persons
I should straightway make this answer:
In the cities where the traveler
Journeys to across the water;
Such as Paris, London, Berlin,
Venice and St. Petersburg,
There are buildings grand noble,
Filled with canvases and marbles—
Deathless works that have survived the
Generations that produced them;
And the beautiful creations,
The great work of modern masters,
Here are found, and all united
Fill these vast and solemn spaces
With the Art of all the Ages;
And these great and rare collections
Hung within these spacious buildings
Are denominated galleries:
As for instance Gallery Louvre.
So the most exceeding fitness
Of the name we first adopted
And in fact have always clung to
Is, I trust, now made apparent.
And it may as well be mentioned
That we don't propose to drop it,
But our places still are galleries,
And till crack of doom they will be
Or at least sometime henceforward.
But if these same captious people
Should persist that such rude places
As I've just now been describing,
With their poverty of product,
Don't jog elbows with the Louvre.
Still I'm not without resources;
For I straightway should remind them
That we've pulled on up the pathway
Somewhat since the days of forty—
That a half a century's struggle
Has brought round conditions different,
And we make a better showing
From a worldly point of vision.
One by one these modest attics
Have been given back for storage,
And the primitive equipment
Now for curious brings high prices.
He who seeketh now a sitting
For a likeness made by sunlight
Need not climb the dusty stairway
Till his head grows hot and dizzy,
But a single broad, inviting
Flight of steps, perchance of marble,
Takes him up a single story,
Or an elevator lands him
At a suit of choice apartments
Of some fine and costly structure,
In some fashionable quarter;
Where, if leisure smileth on him
He can study various phases
Of the work to-day presented—
Work in platinum and silver,
Work in carbon and on porcelain,
Work in light and shade, or color,
Work from miniatures to life size,
Busts, and half-lengths, and full figures,
With unique effects of lighting,
And variety of handling;
So the hour passed has been pleasant,
And he finds himself enlightened,
Hence within the sky-light chamber,

Where the orderly confusion
And the multitude of objects
Puzzles and distracts his fancy:
Here a battery of lenses
Are arrayed on polished boxes,
Raised or lowered by touch of finger:
Backgrounds passing over rollers
Mimic all our life's surroundings;
Here are scenes in park or garden
For the dude or pensive maiden;
Gateway by a shady cart path
Which the summer girl beguileth;
A balcony in moonlight
To help out a Juliet romance;
Libraries, drawing rooms and boudoirs,
Plastic grounds, profiles and grass mats;
Cabinets, draperies and rugs,
Vases, flowers, *et cetera*.
This is but a slight description
Of the photographic work-shop
Found to-day in all large townships
From the mountains of New Hampshire
To the gates of the Pacific,
Not to mention the palatial
Place there Stein and Kosche have opened
In the city by the lakeside
To give tone and proper eclat
To the Columbian Exposition,
And if we can't call them *galleries*
Half their glory is departed.
I must think the name's prophetic,
And that our poor struggling brother,
The despised daguerreotypist
Builded better than his knowledge
When he christened his bare attic
And through jibes and contumely
Hugged the title to his bosom;
And if still we lack the level
Where this name would be becoming,
We can say with modest firmness
That the years are all before us;
And if we keep on advancing
As we have done to the present
That the year A.D. 3000
Will have gallaries that the public
Will acknowledge fit the title.
But we have another trouble
That, if anything, is graver
Than the one I've just referred to.
There are some misguided persons
Who proclaim in shrill loud voices,
And with noses high uplifted,
That we must not be called artists.
And they reason back and forward
In a tone that's half disdainful,
Showing what preposterous nonsense
It must be to grant the laurel
To the men who make their pictures
By machinery and *sich-like*.
Genius does not dwell in cameras
Say they, and the divine afflatus
Only comes to paints and brushes.
If, with downcast eyes, we mention
That the posing, and the lighting,
And accessory arrrangement—
Making up the composition—
Is outside the camera's province
And perhaps, deserves some credit,
And, in fact may not be different
From a portrait painter's study:
Our stern critic points his finger
At the camera and says, *Go to*.
Then with such resentment as our
Broken spirits will admit of
We rejoin that all the asses
Are not grazing in the pastures.
Thus the controversy waxeth
Hot and hotter, and the journals
Fill their valued pages with the
Balderdash both sides have written.
Prominent 'mong our traducers
Is a cynical Professor,
Who has written much and published
In the photographic journals;
And a bull is not made fiercer
By a red flag than is this writer
When he sees the name of artist
Coupled with our avocation.
He assigns our status off-hand,
And declares our crafty purpose
Is to gain high social standing—
To get in among our betters—
And perchance to plant our banners
On the heights whereon *he* standeth.
Such temerity must not be
Let to pass, else what distinction
Can there ever be hereafter
'Twixt the artist and mechanic;
So he sits down hard upon us,
And in sneering phrase reminds us
That we are not any better
Than we ought to be, etc.,
And that outraged art flees from us
When we take the name of artist.
A 'cute philosophic writer
Put it down that men noteworthy
In professions, or whatever
Would apply to their vocation,
The most modest appellation
They could find that would express it.
Acting on this hint, it maybe,
One—a lady—new among us,
Yet whose name is widely quoted,
Who has won her spurs by valor,
Has designed a unique title,
One so wanting in assertion
That our irascible professor
Surely can't withhold approval;
Camerist is the name she's chosen
As a proper designation
Of a person who on dry plates
Bodies forth his great conceptions.
Why she didn't say Tripodist,
Is perhaps an open question,
But 'tis not polite to cavil
When a lady's in the matter;
She has surely done great service,
Throwing oil upon the water;
Now, perhaps, we'll have some leisure
To improve our work a little.

As has been remarked already,
We have pulled on up the pathway
Of improvement quite a little,
And have really got some standing.
We hold National Conventions,
And the press associations
Herald all our mighty doings
Through the cities of the country,
Even to remotest hamlets;
And reporters catch our button
To "detain us just a moment,"
As they do important persons;
And we press cigars upon them,
And intoxicating liquor,
So their vision may be clearer
When they comment on our speeches—
Just the same as do the members
In the lower house of Congress.
While photography is not hoary
Yet with age, our backward glances
Are through half a century's vista,
And already we've begun to
Mark our headlands with memorials,
Surely it was very proper
To begin at the beginning,
And to rear in bronze and granite
A reminder of our founder—
Of the great original *camerist*.
'Twas two years ago this summer
The convention was in Boston,
And the fiftieth anniversary
Of Daguerre's great discovery—
Fifty years since the first picture
That was ever made by sunlight;
And the twentieth anniversary
Of the first convention holden;
Which it may as well be stated
Was in that same proud old city—
That extravagant old township
Where the State-House dome is gilded,
And broad acres are devoted
To a common and a frog pond
In the center of the city;
Where our President abideth,
Waxing fat in fame and riches.
So, in this historic township,
When concurring anniversaries
Lent a grace to the occasion,
It was deemed a fitting moment
To bring forward the suggestion
Of a great Daguerre memorial,
And our brother out in Cleveland,
Who don't need an introduction
At my hands, I am quite certain,
He who carried off a medal
At the very first convention,
And who many a time and often
Has the same offence repeated;
And though getting fat and forty,
Or, perhaps, a little older—
Yet the boys he still can worry
When he sets himself about it;
He expounded how this matter
In his mind could be accomplished—
Carried to successful issue:

If each camerist in the country
Would take from his trousers pocket
One good, sound, almighty dollar
And custom it toward this project
We could honor our great founder
With a monument much higher
Than the gibbet built for Hamen.
So we lost no time concurring,
And the order went out—"*forward*."
When a twelve-month had been added
To our lives we set our faces
Toward the capital of the nation;
But the monument had hustled,
And had gotten there before us
And was on it's firm foundation,
In the great Smithsonian building.
When we'd all bowed down before it
We repaired into the chamber
Where we wet in solemn conclave,
And the thing came up as business.
Then 'twas found that Brother Ryder's
Scheme had financially miscarried.
It is not within my purpose
To explain the why or wherefore;
But the goods had been delivered
And we hadn't got the ducats
To repay the needy artist.
Lowering clouds hung thick about us,
And our way seemed all uncertain
When we'd listen to the statement
Of the Chairman of Committee.
Once, 'tis said that Daniel Webster,
On convivial occasion,
When a toast had brought the statesman
On his legs, which were unsteady,
Made the national debt his subject,
And got into such deep water
That he couldn't see his way out;
Then he drew himself up proudly
And in his deep voice exclaimed
"*National debt! Why how much is it?*
Don't be worried, I will pay it."
And we thought that the Committee
Possibly might make such proffer.
But as they were less in liquor
Than the Massachusetts Statesman
Their estates seemed less extensive,
And they had far greater prudence,
So the silence was unbroken,
And the debt shut down upon us.
Then there rose an honored member,
To whose voice we always listen
With respectful, close attention,
Who has a capacious pocket,
And a brain and heart to match it—
Who don't talk to the Convention
To hear how his voice is sounding,
Neither for the sake of buncombe,
But who grasps the situation
And gets straightway down to business.
He remarked upon the credit
This Memorial had brought us,
And suggested a subscription
At this time would be in order.
"He would give five hundred dollars,

And if others figured higher
He would du)licate their figures."
Then a great New York supply house,
Which for many years has sold us
Goods for cash or notes approved of,
It transpired would give like money.
Other dealers followed quickly,
With most generous subscriptions,
Other men who make the dry plates
Went down deep into their pockets,
And the men who make the pictures
Gave large sums with cheerful faces,
The presiding officer leading
(Though before a liberal giver)
With an even hundred dollars.
Thus the tide of wealth set quickly
Towards our great debt's liquidation,
And the gulf that yawned before us
Was bridged over in one morning.
Then we had a dedication,
A most august ceremonial.
We sent up a picked committee
To invite the nation's chieftain,
He who lives up at the White House,
To lend his official presence;
But the chief was out of spirits
(Nothing liquid is referred to),
And he had a personal grievance
Toward photographers in general.
He had lately had some pictures
Which quite failed, in his opinion,
To express the noble presence
Of the head of this great nation.
But he answered most politely
That he felt the greatest interest
In the camerists of the country;
But a previous engagement
He had made that very morning
With a baby named McKee,
Would prevent his being present.
So his Excellency was absent
From our little family party,
But the thing went boldly forward,
Forward like a dress parade.
The fine speech of presentation
By our many medaled brother,
Who was Chairman of Committee,
And the great and grand oration
By a cabinet secretary,
With a face and form most *noble*,
Who with eloquence baptized it,
Were in happiest accord.
Then the veil which had obscured it
Dropped mid thunders of applause:
And a number of fine people
Said there was no flies upon it.
Like the sphinx upon the desert
There 'twill stand through coming ages
To perpetuate the founder
Of the art of sunlight pictures,
And to fitly mark our progress
To the end of half a century.
Thither will the feet of pilgrims
Turn, when taking in the wonders
Of the capital of the nation;
Whither, too, may turn the footsteps
Of our sons, or of our grandsons,
From their legislative duties
In the spacious halls of Congress,
To refresh their jaded spirits
By a look at the bland visage
Of the now immortal Frenchman,
Whose discovery opened up the
Pathway to their father's fortune.

GUSTINE L. HURD.

Correspondence.

"A" "B" TRADE MARKS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Referring to the notice you have published regarding my exclusive right to the use of the letters A and B as trade marks on dry plates, would say that the Harvard Dry Plate Co. and the G. Cramer Dry Plate Works have graciously acknowledged my title in these trade marks granted me by the U. S. Patent Office; and will hereafter change the designation of their respective brands. Respectfully,

John Carbutt.

PHILADELPHIA, Pa., July 7, 1891.

Notes and News.

Nitrate of Lead in the combined fixing and toning bath is said to be an excellent tanner for the gelatine film.

Edmond Bequerel, the renowned physicist, died at Paris, on May 11th, at the age of 71 years.

In his death science has suffered an irreparable loss. His investigations upon the field of optics, photochemistry, and mainly heliochromic, have contributed much to the advance of photography. He has erected for himself an everlasting monument, and adepts in the art-science mourn in his death the loss of one of their greatest co-laborers and guides.

Professor Meldola calls attention to an important discovery by which the sensitiveness of photo-chemically decomposable combination can be much increased by the admixture of other substances. Organic iron salts for example, combined with appropriate sensitizers, are capable to produce films as highly sensitive as modern gelatine emulsion without containing the least trace of a silver salt.

The American Annual of Photography for 1892 is making good progress. Nearly one-third of the book is already in type, including articles by W. J. Stillman, of Rome; W. Jerome Harrison, of England; E. Andra, of Paris; Ellerslie Wallace, M.D.; Rev. Clarence E. Woodman, Ph.D.; W. H. Sherman and others as well known.

Nearly a dozen full page pictures are now being printed, and others are under way.

The first edition will be 16,000 copies. At July 1st, the

advanced orders for the book amounted to four thousand copies (4,000). Since then the publishers have received the following additional orders:

Messrs. Loeber Bros , of New York..... 500 copies.
Messrs. Barker & Starbird, of Boston..... 150 "
Mr. F. H. Hull, of Providence..... 100 "

The New Ziss Photographic Objectives are creating quite an unusual sensation among German photographers. Of the several series we will at present mention but two :

Series III. The anastigmate is an instrument intended mainly for instantaneous work. It is composed of five lenses, of immense luminous power, and has a field of vision of more than 80 degrees.

Series VI, or the universal objective, is a triplet. On account of its perfect freedom from spherical and chromatic aberration it is especially well adapted for extensive enlargements, which are rendered extremely sharp, much more so than with other lenses. For portraits and groups in natural or artificial light, for landscapes, for architectural views, interiors or photogrammetrical work these lenses can scarcely find their equal. They have an angle of view of 90 degrees, and possess a luminous force equal to the new aplanates made of sena barium flint glass.

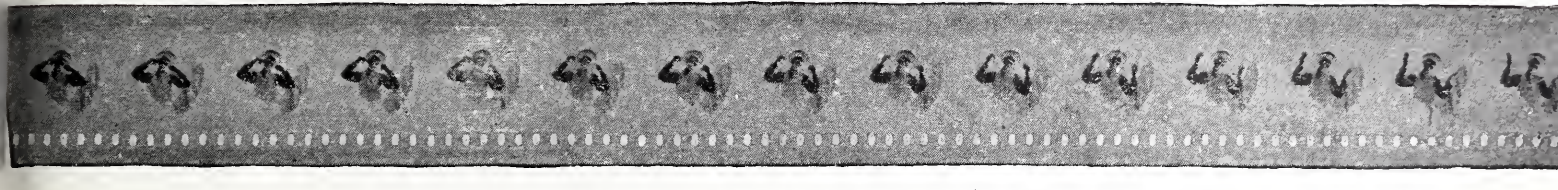


Photo-Engraving of a Portion of the Strip Negative of the Kinetograph (Actual Size).

EDISON'S KINETOGRAPH.

Recently the daily papers have been filled with reports of interviews with Edison, from which the reading public would obtain the idea that Edison had lately invented something of paramount importance, whereas these inventions, as curious and wonderful as they appear, are, in reality, scarcely more than the pastime of the hour with Mr. Edison.

The "kinetograph" is a machine consisting of a clever combination of a photographic camera and the phonograph, by which the words and other sounds of a speech or play are recorded simultaneously with the photographic impressions of all of the movements of the speaker or actor. The photograph impressions are taken at the rate of forty-six per second, and the phonograph has its capacity increased so that it will make a continuous record for thirty minutes without any shifting of the cylinders. The celluloid film upon which the photographic impressions are taken is perforated along one edge with a series of holes arranged at regular intervals with as much precision as can be secured by means of the finest perforating mechanism. This feature is of vital importance, for the holes must move the film with such regularity as to make each separate impression when reproduced coincide exactly with the words or sounds recorded in the phonographic cylinder simultaneously with the position and expression of the speaker, actor, or singer at the time the sounds were uttered. Exact synchronism between the sound-recording mechanism and the shutter-operating and film-moving devices of the camera necessitates exceedingly accurate mechanism both in the recorder and in the reproducer. The phonograph and camera mechanism in both cases is driven by the same motor, and controlled by the same regulating mechanism.

The greatest difficulty experienced in taking the photographic impressions and reproducing them was in the stopping and starting of the film. It was found that the stopping and starting of even so light a thing as the film forty-six times in a second required about two-thirds of the time, the remainder being utilized for the exposure of the plate. To secure enough light for the production of a good image in so short a space of time, a special camera lens of large aperture had to be constructed, at a cost of $600. The apparatus has already been carried to such perfection that the motion of the speaker's lips coincides so exactly with the words reproduced by the phonographic cylinder that the words actually seem to proceed from the picture, and all the movements of the speaker or actor are reproduced by the succession of the different images with such rapidity as to make the picture appear absolutely continuous, instead of intermittent, as it really is.

The reproducing apparatus is practically a reversal of the camera and phonograph; that is to say, instead of the photographic camera, a superior form of projecting lantern is employed, which is provided with a strong light and mechanism for moving forward the strip with an intermittent motion corresponding exactly to the motion of the negative strip in the camera, and, like it, acting in perfect synchronism with the phonograph. The lantern is also furnished with a light interrupter, which eclipses the light during the brief period required for shifting the film forward to a new position to show the succeeding picture. The phonograph with its resonating horn is able to reproduce the sounds so that they may be easily heard in any part of an ordinary hall without the necessity of applying the ear to the instrument, as in the case of the commercial machines, and the successive pictures necessary to produce the effect of motion upon the screen follow each other with such rapidity, and with so little change in the successive positions, as to give the picture all the appearance of life.

Mr. Edison is at work preparing apparatus on a large scale, which will be finished in time for exhibition at the Chicago Exposition. This apparatus does not seem to be adapted for universal use, although a favored few may be able to enjoy it. It will give to public speakers, actors and opera singers the gift sighed for by the poet, who said :

"Oh! wad some pow'r the giftie gie us,
To see oursels as ithers see us!"

We think if some of our public speakers would patronize a machine of this kind they would soon change their style of oratory. May we not expect the early adoption of this instrument in institutions where elocution forms a branch of education?—*Scientific American.*

The Editorial Table.

"**Shashin Shinpo,**" the Japanese *Photographic News*, founded and edited by Professor W. K. Burton and his friend, K. Ogawa, being the only newspaper in Japan devoted to photography, has grown to such an extent that advertisers in other countries are now using it as a medium to reach Japanese photographers.

We are in receipt of a circular giving the very moderate advertising rates of this enterprising periodical. Full particulars may be obtained by addressing *The Shashin Shinpo*, 4 10th Street, Kobikicho, Tokio, Japan.

"**The Photochronograph**" and its application to star transits, with illustrations, has come to hand from the Georgetown College Observatory. It is an interesting pamphlet to all who are working in this important field of research.

"**The Photographic Instructor.**"—"Great credit is due to the writers of the various chapters which make up the 'Instructor,' and the editors for their careful work."—*Wilson's Photographic Magazine.*

Don't be Deceived by the representation that some fancy brand of cardboard is equal to "THE WATERBURY." Samples of "THE WATERBURY" will be furnished free for examination. Beware of imitations.

The Scovill & Adams Co.

Photographic Reproduction Processes.—"I consider it a very useful work, particularly to engineers, architects, draughtsmen, etc., among whom it should command a large sale.

"*G. W. Canfield,*

"Ex-President Society of Amateur Photographers of New York."

RETOUCHING.

AFTER SHAKESPEARE (A LONG WAY).

RETOUCH, or not retouch? that is the question—
Whether 'tis nearer to truth to leave the
Marks and wrinkles of approaching age,
Or to take brush and pencil and retouch,
And by disguising hide them? to spot, to shade,
No more, and by some skill to say we end
The heartaches and annoyances
That sitters feel; 'tis a consummation
Devoutly to be wished. To spot, to touch,
Retouch, perchance to beautify—ay, there's the rub.
For in retouching what youth restore,
And shades and markings of old age destroy,
Must give delight. There's the great skill
That makes retouching so desirable;
For who would bear the lines and freckles,
Scars, pimples, and deep shadows,
A twisted mouth, thick nose, and crooked eyes,
With features all irregularly plain,
When by the pencil's skillful power
They might be beautiful for ever?

—*The Amateur Photographer.*

Queries and Answers.

105 WE have received the following inquiry: "Will you kindly tell me whether the Eclipse Films (Carbutt's) are to be exposed on the rough side or on the smooth side? Some say one thing and some another."

105 In reply to which Mr. John Carbutt, the manufacturer of these films, writes as follows: "The mat or rough side is the back of film, and when a doubt arises as to which is the coated or sensitive side it is easily ascertained by moistening the tip of the finger and touching a corner of the film; the sensitive side will become tacky to the touch, while the back will not. I claim several advantages for having the back of film a mat surface; it prevents halation around windows when photographing interiors, or in landscapes with trees against a bright sky. Consecutive numbering of the films is readily done with pencil on the back and will remain all through the manipulation of developing, etc., and any chance spot from dust on film during exposure can more readily be touched out by pencil on back than by color and brush on the front. The only objection to the mat surface back is when an enlargement is to be made from a small negative, then the grain would show. For purposes of enlargement and for use in photo-mechanical printing we furnish films on clear transparent celluloid, which offers no obstruction to enlarging from the negative, or being printed from the reverse side by the simple expedient of placing the printing frame in a lidless box 20 inches or more deep lined with dark paper, and the open end presented to the sun or sky; the image will print through the $\frac{10}{1000}$ thickness of film without any practical loss of sharpness.

106 OTTO KRANZ.—When preparing mat surface paper by brushing on the solution of ammonia nitrate of silver with a tuft of cotton, it occurs sometimes that an edge of the sheet, from 1 to 1½ inches in width, prints spotted and mealy. At the same time the central part prints well. What is the cause of it?

106 *Answer.*—Not silver enough on the edges of the paper. Distribute the solution evenly all over, and over every part of it. You will probably do better by floating, if the quantity of your solution allows to do so.

107 BROOKLYN.—Farmer's reducing fluid with ferricyanide of potassium and hypo turns blue after standing a few minutes in daylight. How can that be prevented?

107 *Answer.*—It will turn blue in time in the dark even when its reducing force is lost. It is one of the properties of the compound, and makes it far less reliable than Bellitski's solution with potassium ferric oxalate, which is described in "American Annual of Photography" for 1891, page 334, No. 74.

108 KENTUCKY.—Where can I obtain a pure article of trichloride of gold? I have purchased some from our local chemist, but when in solution it deposits after a few days' standing a brownish powder interspersed with little particles of metallic luster, presumably gold. With the appearance of the deposit the toning force of the solution seems to lessen.

108 *Answer.*—At the Scovill & Adams Company. But your gold chloride is probably as pure as any. When chloride of gold in solution is exposed to the action of light, chlorine is dissociated, and metallic gold falls down. Keep the solution in the dark.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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" " one month's trial 50

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Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.

One page, each insertion $20 00
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Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

SUIT has been brought by the Eastman Company, of Rochester, N. Y., against the Blair Camera Company, of Boston, Mass., on roller holder patents, and motion for preliminary injunction has been noticed.

THE Henry Clay Camera is one of the latest and most approved cameras now turned out by the Scovill & Adams Company. Its size is 5 x 7 and its weight is less than 5 pounds. It is truly a detective camera, because when closed there is no finder visible which could in any way indicate what it was used for. It forms one of the neatest and most excellent cameras now on the market and will be a favorite with those who want a nice outfit.—*The Eye.*

A NEW depot for amateur photographic supplies has been opened at the corner of Seventh Avenue and 121st Street, New York, by Messrs. George L. Ehrmann & Co. They announce that they are prepared to do mercantile photographic work.

Business Notices.

FOR SALE.—Right to manufacture under royalty the Stoddard Patent Plate and Film Holder. *Twelve* 8 x 10 *holders for dry plates occupy but* 2½ *inches in thickness; two dozen film holders but* 3 *inches.* They can be made of metal and wood combined, and sold for 50 cents at a profit. I believe them to be the *lightest substantial holder made.* The attachment forming a part of the patent can be applied to any camera. Address for particulars,
S. R. STODDARD, Glens Falls, N. Y.

WANTED.—Boy acquainted with the photographic business and who is accustomed to the loading and unloading of kodaks. Address
KODAK, 26 West 23d Street, City.

FOR SALE AT A GREAT SACRIFICE.—Photograph gallery at Orange, N. J. For particulars appply to
S. & C. A. LINDSLEY, Orange, N. J.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
L. C. BENNETT, 423 Broome St., New York.

NOTICE.—The undersigned begs to announce that Mr. Charles W. Tremblay, long and favorably known to my patrons, is again connected with this establishment and has charge of the office, where he will be glad to meet old friends. L. W. SEAVEY,
Cheever Ave. and Walton Place, New York.

A 10 x 12 DALLMEYER R. R. LENS, No. 30110, was stolen from the gallery of Jos. Slater, Franklin, O., during the month of May last. If said lens should be presented to any one for sale, Mr. Slater will be obliged to him if he will telegraph at his expense and hold the lens.

FOR SALE OR FOR RENT.—The only gallery in town of 25,000 inhabitants, nicely furnished and well equipped; splendid location and plenty of water. Will sell at a bargain. For information address Henry Frey, 421 Lackawanna Avenue, Scranton, Pa.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co. and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

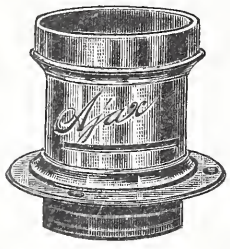
DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

SOUVENIR ALBUMS.—Exact photographic reproductions of all the leading cities and scenic views noted throughout the U. S. Wholesale and retail. Entire editions, with sole control, at special prices. For descriptive circular, address CHISHOLM BROS., Portland, Me.

WANTED—Artists in India ink and water colors. Good artists can obtain lucrative and permanent positions with us.
DALLAS PORTRAIT COMPANY, Dallas, Texas.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.



JUST THINK OF IT!

4 x 5 Rapid Rectilinear Lens $9 60
5 x 8 Rapid Rectilinear " 11 20
6½x 8½ Rapid Rectilinear " 16 00
8 x10 Rapid Rectilinear " 19 20

Send for price-list and descriptive circular.

BUCHANAN, BROMLEY & CO., Importers,
1226 Arch Street, Philadelphia.

$500 IN PRIZES
TO
AMATEUR PHOTOGRAPHERS

Nine Prizes for Landscapes, Portraits and Flash Lights. No person can take more than one prize. Contest closes October 15, 1891.
Send for particulars to
THE JOHN WILKINSON CO.
269-271 STATE ST. CHICAGO.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

AMATEUR PHOTOGRAPHERS.

You can not *take* photographs in natural colors, but you can *make* them by using the

EGYPTIAN CHEMICAL COLORS,

which will give the much desired effect. The art of using the colors is so simple that the most inexperienced person can color photographs bromides, etc., with entire satisfaction.

Full directions accompany each set. In three sizes, viz.:

No. 1 size box contains 14 1 ounce bottles of colors, price $6 00 each.
No. 2 " " " 9½ " " " " " 3 00 "
No. 3 " " " 9¼ " " " " " 2 00 "

Orders by mail should be accompanied by check or money order, and will be promptly filled.

SCOVILL & ADAMS CO., 423 Broome St., New York.
HOMER WORDEN CO., Sole Makers, 228 East 24th St., New York.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A few good Crayon Artists. Address Lane Brothers, Housatonic, Mass.

At once, a first-class retoucher, who is also a good operator and developer. Easy and permanent position for a good man. Send average samples to W. D. O'Donnell, Halifax, Nova Scotia, Canada.

Immediately, a man for general work; must be a good retoucher. Address "R," care of PHOTO TIMES.

SITUATIONS WANTED.

E. G. Engls, 152 Dean Street, Brooklyn, wants situation as printer and toner. $15 per week salary.

Position as printer and toner, or assistant operator and retoucher; first-class New York city references. Address Photographer, Fairchild's Hotel, South Main Avenue, Scranton, Pa.

Operator—practical and experienced—is ready for an engagement. Address C. O. Lovell, Amherst, Mass.

By a thorough first-class photographer of long practical experience in all branches of the profession. Terms, $15 per week. Address J. Basano, 544 Eleventh Avenue, New York City.

A good wet plate photographer. Address Dallas Art Company, Dallas, Tex.

By experienced operator, retoucher or general assistant. Best of references. C. W. Wood, 109 Sackett Street, Brooklyn, N. Y.

By an experienced operator, competent to take entire charge of a gallery. Is a fine retoucher. Address H. W. R., PHOTOGRAPHIC TIMES Office.

An experienced operator, first-class positionist and dark-room man, is open for an engagement. Best of references. C. H. Robinson, 2437 Eighth Avenue, City.

By a single young man as retoucher; willing to assist generally. Seven years' experience. Address E. D. Kistler, Shamokin, Pa.

A young man who is a good retoucher and all-round photographer is open for an engagement, or will take charge of and run a gallery on shares or salary. Good reference and samples of work on application. Address at once to Wm. C. Carpenter, Maitland, Holt County, Mo., care of G. W. Carpenter, Photographer.

Position as retoucher. Address Wilhelm Holzapfel, 517 81st Street, New York City.

Position by a young man of perfect habits, unmarried, as printer; can operate and retouch. Worked in good galleries. Will furnish references and specimens of work. Address "D," Lock Box 94, Falls City, Neb.

"Nothing Succeeds Like Success."

In this connection it is natural to think of ORTHOSCOPE LENSES. There must be some reason why they are selling so rapidly. We think we know why; if you don't, perhaps you will be interested to find out. Other people are finding out, and somehow after they have tried a lens they won't let us have it back. Strange, isn't it? The list which tells about them can be had for the asking.

THOS. H. McCOLLIN & CO.,
PHOTOGRAPHERS' SUPPLIES,
1030 Arch Street, Philadelphia.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

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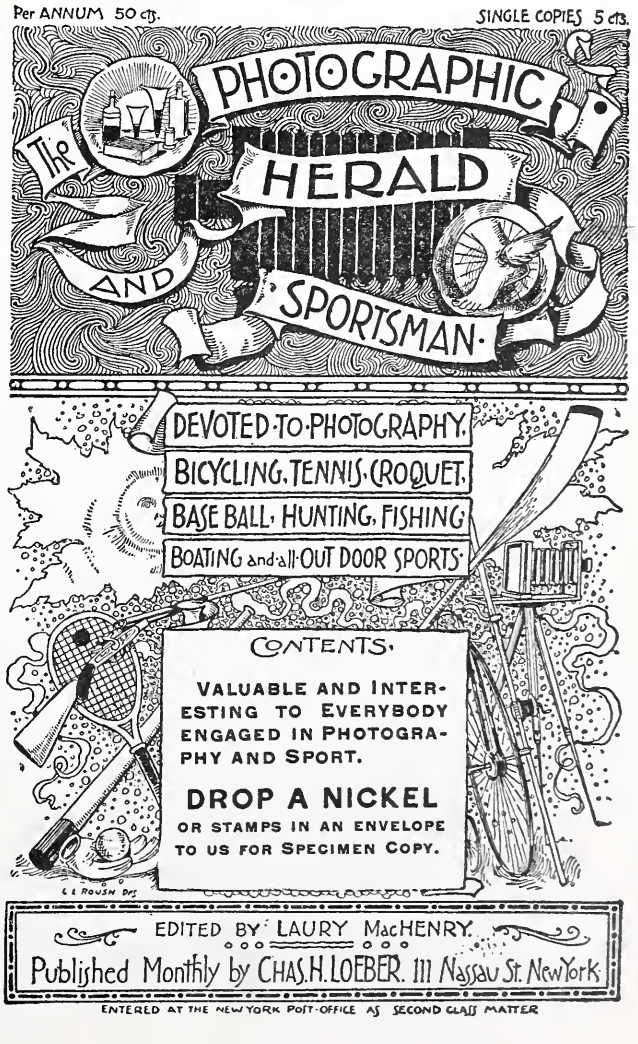
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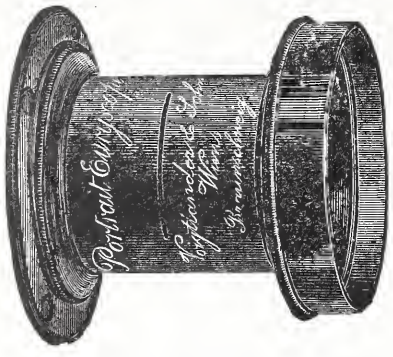
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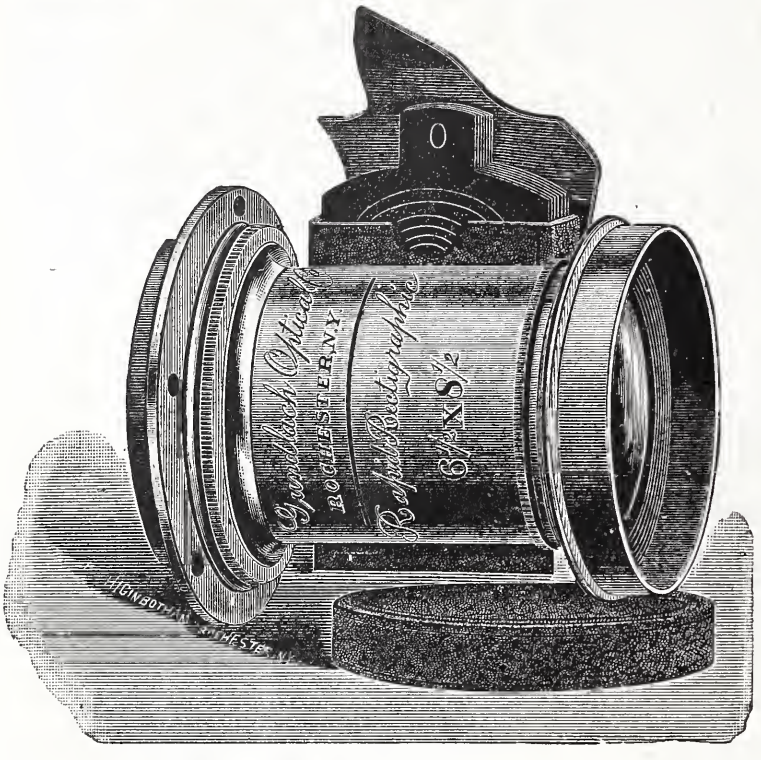
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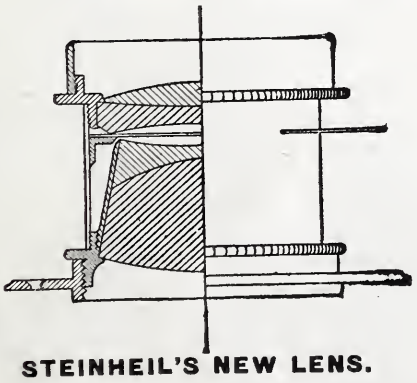
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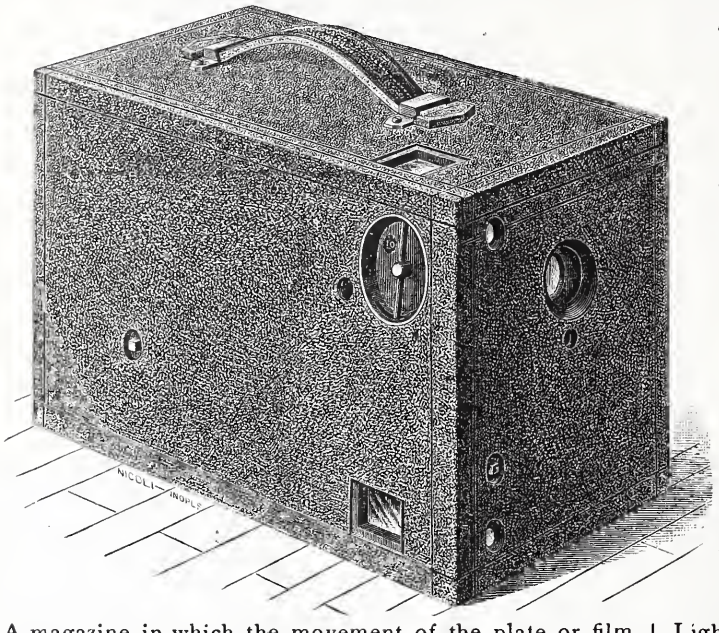
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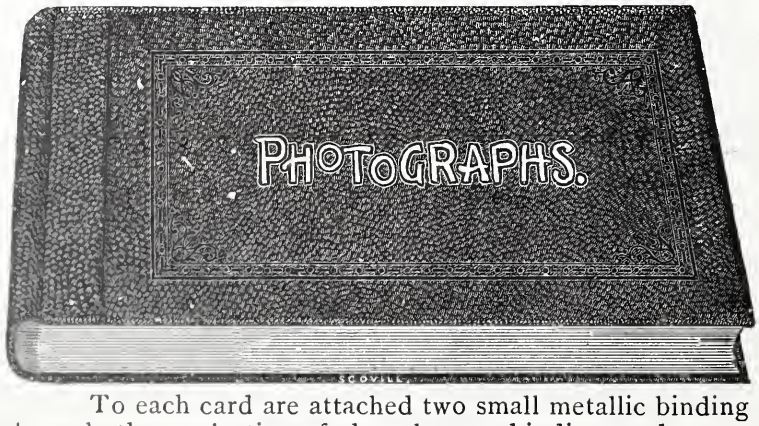
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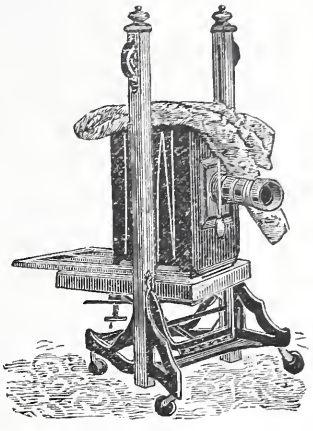
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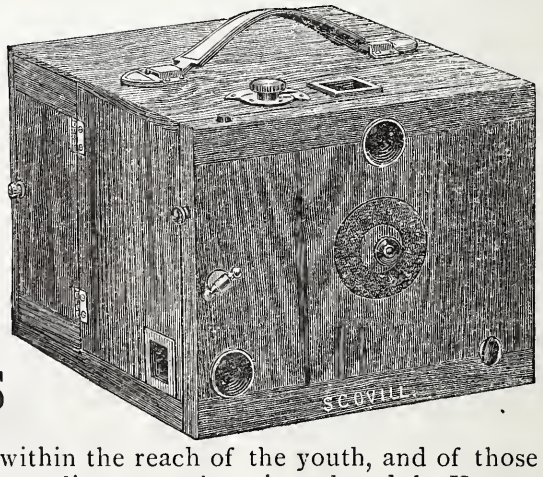
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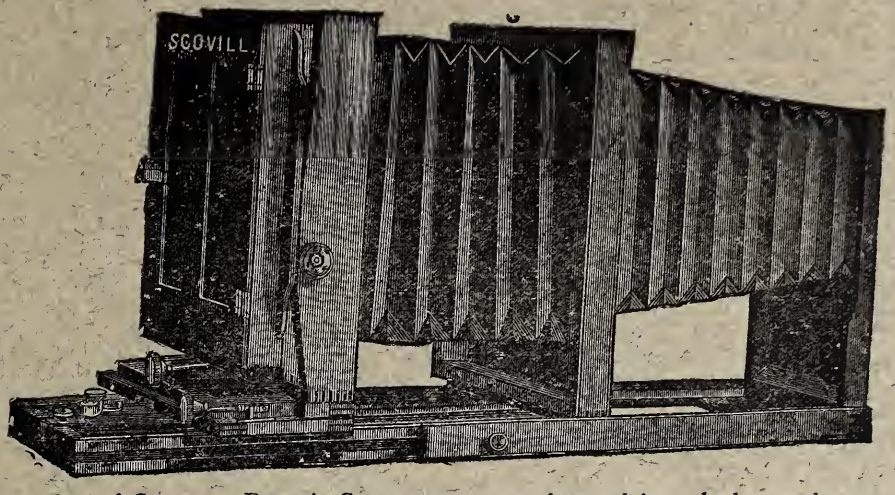
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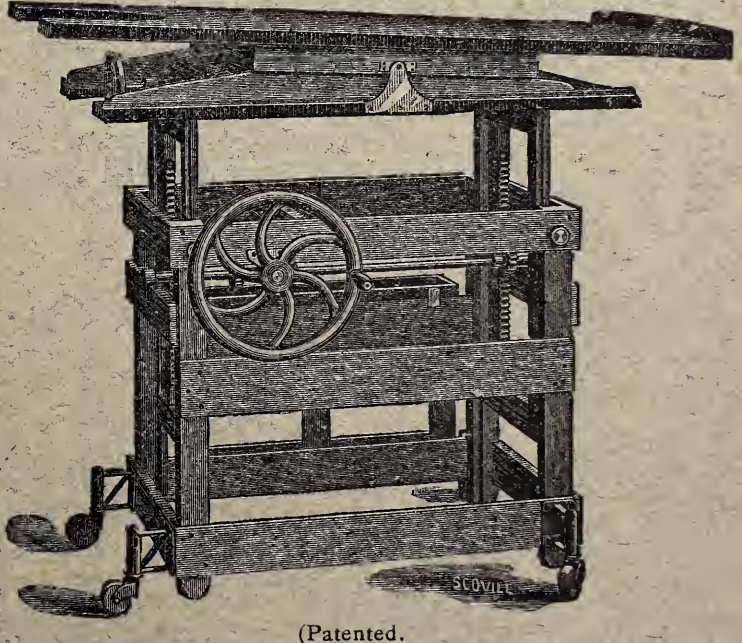
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L. A. M. KNIGHT PHOTO

THE AMERICAN ELM

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, JULY 31, 1891. No. 515.

THE AMERICAN ELM.

OUR picture of the American elm is from a negative by Chas. M. Knight, an amateur of Akron, O., and President of the College Camera Club of that city. The subject is one of the many magnificent trees that adorn the Connecticut River Valley, this particular one standing in southern Vermont. "I have always called the picture 'A Field Corner,'" writes Mr. Knight, "because the tree stands in the corner of a large hay field, near the outlet where the loads of hay pass. It was taken several years ago, and developed in a farmer's kitchen after dark with very meager conveniences." Mr. Knight has certainly given us a beautiful picture.

THE BUFFALO EXHIBITION.

THE EXHIBITION OF PHOTOGRAPHS,

as we stated last week, was not so large as many previous similar exhibitions, nor so varied in interest, but the work shown was of a very high average of merit. The photographs were mostly large portraits and *genres*, indeed we noticed but two exhibits of cabinets. This is undoubtedly the result of the system of offering prizes from year to year by the association. Its tendency has been observed for several years, but never was the error of offering so many medals for certain classes of work so conspicuously manifested as this year at Buffalo. Another conspicuous thing concerning this annual exhibition of photographs is the fact that about the same photographers every year receive the medals. The obscure country photographer has little inducement to compete, and whether justly or not, considers that he has little chance of winning a prize. The exhibitions as a consequence have been running more and more in one direction, until this year at Buffalo the climax was reached. There was a great sameness throughout the exhibition. Only four tried for the grand prize in the Elaine competition. The large landscapes of Mr. Jackson, of Denver, without figures, and the English landscapes, with figures, by H. P. Robinson, of England, were perhaps the most notable features of the exhibition. There were some excellent portrait work also from abroad. The remainder of the pictures were creditable specimens of large work by the usual exhibitors at these conventions. Following is the list of awards:

Messrs. J. E. & A. J. Rösch, of St. Louis, first prize; H. H. McMichael, second prize, a diploma.

Class A.—Mr. H. Randall, Ann Arbor, Mich., first prize; G. M. Elton, Palmyra, N. Y., second prize, diploma.

Class B.—E. F. Hall, Buffalo, N. Y., first prize; P. H. Rose, Providence, R. I., second prize; N. S. Bellsmith, Denver, Col., third prize.

Class C.—E. C. Dana, N. Y., first prize; Gilbert & Bacon, Philadelphia, second prize; George Steckel, Los Angeles, Cal., third prize.

Class D.—There is only one prize, No. 44—J. M. Brainard, Rome, N. Y.

Class E.—Landscapes without figures.—Miss C. E. Sears, Boston, first prize; A. Heimberger & Son, New Albany, Ind., second prize; Marine—Mr. H. G. Peabody, of Massachusetts; Architectural.—C. C. Langill, New York.

Class F.—Jas. Inglis & Co., Chicago, first prize; Eastman & Co., Rochester, N. Y., second prize.

Class G.—E. P. King, Providence, R. I.

Class H.—G. Wining, Providence, R. I.

Class I.—J. R. Lane, Columbus, O.

Class K.—Foreign Exhibit.—W. J. Byrne, Richmond, Surrey, England, first prize; Mueller, Munich, second prize.

The committee also awarded to Mr. H. P. Robinson a diploma for his collection of pictures, for which there was no award.

A special award was also given Mr. Jas. Inglis for his beautiful bromide enlargements.

For improvements in photographic machinery since the last convention, the committee awarded the prize to the Automatic Rapid Printing Machine Co.

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The following special prize awards were also made:

Six Cramer prizes of $100 each:

For portrait work: Dana, New York; Rose, Providence; Stein, Milwaukee.

For landscapes: Jackson, Denver, Col.

For instantaneous work: Hemment, Brooklyn, N. Y.

For work on instantaneous plates: Elton, Palmyra, N. Y.

The Air Brush prize was awarded to Mr. W. H. Sherman, of Milwaukee, Wis., for the best portrait in black and white; also one Air Brush to Mrs. H. D. Sanders, of Alfred Centre, N. Y., for the best portrait in colors.

The Exhibition of Apparatus

was also lacking in interest, and was very small. The manufacturers and dealers who have made these exhibitions in years past have felt the burden ever heavier as the attendance and consequent sales lessened, and many of the oldest and largest houses did not exhibit at all this year. The dry plate makers made the most interesting display, for they showed specimens of work on the various brands of plates manufactured by them.

Wuestner's new eagle dry plate was represented by a most attractive exhibit of large portraits by leading photographers. Photographs from color subjects by the new orthochromatic plate of this company was a special feature of this exhibit. The original subject in colors was shown; the negative and the print side by side with a negative on the ordinary plate, and a print from the same. In the M. A. Seed Dry Plate Company's exhibit we admired the large photographs made by Ryder, Gutekunst and other well-known photographers. The G. Cramer Dry Plate Works of St. Louis made an immense display of photographs on its plates, including various exhibits in the competitions which Mr. Cramer had established. Dana, of New York; Stuber, of Louisville; Strauss, of St. Louis; Rose, of Providence; Havens, of Jacksonville, and other photographers equally as well known, were here represented. J. C. Hemment's winning frame of instantaneous photographs was perhaps the most interesting feature of this exhibit, and excited universal praise. The Harvard dry plate was also well represented by specimens of work by leading photographers.

In the exhibition of J. L. Ullman & Co. was an excellent portrait of President Hastings in pastel, enlarged from the picture given in our Convention Number. The Eastman Co. showed some bromide enlargements, and had on sale a number of kodaks of various sizes. James Inglis exhibited a number of bromide enlargements in a sepia tone which were exquisitely beautiful. They were something entirely new, and were widely admired.

Tucker & Butts, of Buffalo, showed a good assortment of Scovill apparatus at their headquarters in the Convention Hall as well as in the commodious warerooms in the new Tucker Building. Mr. Butts was always in attendance at the latter place receiving the many friends who daily called there, while an experienced salesman presided over the exhibit in the Exhibition Hall.

Wilson-Hood-Cheyney Company, Limited, of Philadelphia, displayed a number of novelties. Among them were Osborne's new plastic and painted ground and accessories, Caswell's background holder, Robbins' revolving show case, a fine line of curtains, draperies, rugs, etc. Mr. John G. Hood represented the firm, assisted by Mr Bennet.

The A. M. Collins Manufacturing Company, of Philadelphia, as usual, made the unique display in this department of the exhibition. This exceedingly tasteful exhibit consisted of a careful selection of artistic tables and show cases on a 25 x 30 feet space, covered with rich Turkish and Persian rugs. In the cases and on the tables were displayed a vast variety of photographic mounts, so vast indeed as to fairly bewilder the visitor and well calculated to impress upon him the realization that there is but one manufactory in this line that can meet the infinite variety of demands. Mounts large and small, from the minute minette to the large panel, with edges plain, straight gold, gold beveled, gold spangled, gold serrated, and edges covered with all the colors of the rainbow, were shown in endless variety. We were particularly attracted by the various fashions of imprinting the mounts and the originality displayed in the designs shown in the numerous styles of embossing in metal and color, stamping in pure gold, lithographing and letter-press printing, for which this company is celebrated the world over, and in the production of which it has no equal. Mr. F. E. Hastings, their representative, informed us that only pure gold leaf is used upon the edges of their mounts, and in spite of the severe competition from goods of inferior grade covered with Dutch metal (which must eventually turn black) have steadily increased their output, a photographer seldom if ever using more than one lot of the "low-priced" but "not cheap" mounts.

The Blair-Anthony exhibition occupied more space than any other in the hall. Here were shown the various hand and other cameras manufactured by the Blair Company, and sold by E. &

H. T. Anthony & Co., and the exhibit was of interest to the amateur as well as the professional photographer.

Bradfisch & Hopkins, of Brooklyn, showed specimen Omega pictures. The Air Brush Company exhibited this wonderful instrument, and with it samples of work in black and colored ink made by it. Seavey made his usual display of backgrounds and accessories, and Benj. French & Co. showed their new non-astigmatic lens.

SUBSCRIBERS TO THE DAGUERRE FUND AT THE BUFFALO CONVENTION.

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H. Littlejohn	5 00	H. R. Koopman	2 00
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Geo. Murphy	10 00	I. H. Fowler	2 00
Bradfish & Hopkins	5 00	G. H. Hastings	10 00
F. Pickerell	2 00	W. A. Davis	2 00
Mr. Lewis	3 00	G. G. Rockwood	10 00
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Wm. Mearatt	1 00	Fitzgibbon-Clark	5 00

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 344.)

CHAPTER I.

PRINTING-PAPERS WITH GLOSSY SURFACES OBTAINED OTHERWISE THAN BY ALBUMEN.

After the introduction of albumen to give a surface gloss to prints about the year 1852, the desire for a highly polished surface (mainly, and especially for portrait work) so increased that many endeavors were made to satisfy it.

The employment of *double*-albumenized paper we have already mentioned. There is no doubt but that the second coating with albumen enables a superior degree of glossiness to be obtained, and that this gloss does throw up and relieve the shadows, and bring out the details.

Blanquart-Evrard Varnishes Prints with Gelatine (1857).—The great French professional printer, M. Blanquart-Evrard, of Lille, proposed, in 1857, to protect and strengthen prints by a varnish composed of gelatine and tannic acid. A reference to this method in the *Photographic News* for 27th May, 1858, called forth a letter from an English worker, Mr. W. L. Scott (June 17), in which he stated that he had practiced such a process for two or three years. The prints were dipped in a warm solution of pure gelatine, dried, and then soaked in a colorless solution of tannic acid (200 grains to the print) for ten minutes. After drying, they were immersed in the same solutions over again, and finally rinsed and dried. This process gave a high gloss to the paper, and was believed to render the prints more permanent. The action of the tannin is, of course, to harden the gelatine—to convert it into a sort of transparent leather, in fact.

Burnishing and Rolling Prints.—The use of a "flat-iron" to level the surface of a mounted print may not impossibly have occurred to some worker of Talbot's "photogenic" process, even as early as 1839. Nay, it is possible that the advantage of using the said flat-iron hot instead of cold may have been discovered at quite as early a date; but this genius, strange to say, did not patent his "application" of the useful domestic implement to this purpose of high art, and consequently his name has not come down to us.

Up to the year 1858 portraits were all but invariably made by professional photographers either upon silver plates (daguerreotypes) or with collodion upon glass. In either way, the finished portrait was placed in a suitable case—*apasse-partout*, or a frame—before being delivered to the customer; indeed its delicate nature made this inevitable.

But in 1858 the mania for the *carte-de-visite* sprang up. Everybody desired to present his or her card-portrait to everybody else; and the professionals reaped a golden harvest for several years. But with the advent of the positive paper-print stuck upon card-board, the flat-iron came out in great force again. Then it quickly dawned on some inventive genius that, by passing the mounted prints between steel *rollers*, the flattening and smoothing would be rapidly and effectually accomplished. Lastly, it was found that if a hot steel bar or plate were substituted for the lower roller, the prints were *burnished* to a degree that gave them a surface almost equaling glass; and such instruments—called "burnishers"—have proved all but indispensible to the professional portraitist ever since.

PRINTING IN "WOTHLYTYPE."

THE name of Wothly (or Wothlij) is unknown to the present generation of photographers; but twenty-seven years ago his printing process created quite a sensation, and the "United Association of Photography," with Colonel Stuart Wortley at its head, was formed to purchase the patent and to work it commercially in England. The English patent itself is dated 24th September, 1864. Paper was sized with arrowroot and then rolled. It was then coated, of course in a dark room, with collodion in which silver nitrate and uranium nitrate had been dissolved. The paper having been dried, was printed out beneath a negative in the usual way. It was then toned and fixed as usual.

All sorts of foolish claims were made for Wothlytype. It was puffed in the *Times* in the autumn of 1864, and was said to be very cheap and capable of giving permanent results. As a matter of fact, the patent contained little that was new. In 1857, the Scotchman, Burnett, had described all the facts about uranium printing. The truth is that M. Wothly was an excellent operator and a good man of business. He produced first-class negatives and made exquisite prints from them. He sold his patent; but he could not sell the skill to which—and not to the patent—the production of his capital "specimens" was due. Wothlytype ran but a brief race; after a year or two nothing more was heard of it. But it doubtless furnished Simpson with the idea of the collodio-chloride printing process, which we shall next describe.

PRINTING WITH COLLODIO-CHLORIDE OF SILVER: SIMPSONTYPE.

At the close of the year 1864, Mr. G. Wharton Simpson (then editor of the *Photographic News*) announced in the *Year Book* or almanac connected with the same periodical, that he had "discovered that chloride of silver may be held in suspension in collodion in a state of subdivision so exceedingly fine that it may be used in this form for coating paper, and gives then, with the usual manipulation, exceedingly fine prints, in which, when finished, *no silver is found in the whites.*" The process was developed and perfected during 1865 and 1866; but although beautiful results were obtained—especially upon opal glass—the collodio-chloride printing process never came into general use.

In practice the paper was first sized with arrowroot to prevent the emulsion from sinking in. Chloride of silver was then formed *in* collodion, by shaking up in it nitrate of silver with chloride of strontium.

$$\underset{\text{Silver Nitrate}}{2AgNO_3} + \underset{\text{Strontium Chloride}}{SrCl_2} = \underset{\text{Silver Chloride}}{2AgCl} + \underset{\text{Strontium Nitrate.}}{Sr(NO_3)_2}$$

(*and* … *and* … *produce*)

The paper was coated by laying it upon a flat surface, turning up its edges all round, but leaving a corner from which to pour; the emulsion was then poured on and off just as in coating a glass plate. The paper so prepared was dried and then printed-out, toned, and fixed in the usual way.

Collodio-chloride paper was manufactured, commercially, on the Continent, by Herr Obernetter.

It is unrivaled for the delicacy of the detail which it brings out; and is specially suited for printing from thin and weak negatives.

It was also made and sold by another continental firm under the name of "leptographic paper."

Aristotype and Obernetter Papers.—During the last two or three years collodio-chloride has again been resuscitated; and has been sold as "aristotype" and "Obernetter" paper. But other papers coated with *gelatino*-chloride of silver have also been sold under these names, and it is a matter of some importance to be able to distinguish between them. This may be effected by treating a *print* with wood-naphtha, which will dissolve collodion, but which has no effect upon gelatine.

W. Jerome Harrison.

(*To be continued.*)

A Paradox.—"Just look at that photographer. The clumsy fellow, he doesn't know how to get on a horse."

"And he does so much mounting, too!"

DEVELOPING.

[Presented at the Buffalo Convention of the P. A. of A.]

"THERE is a great deal of difference between seeing and observing." There is a mountain of truth in a molehill of words in that quotation, which will apply to developing as well as many other things.

It is merely putting in "brains Q. S.," with the other constituents of the developer, but that makes all the difference (except that through pure luck) between a negative that will make a photograph that is a joy to look at, and a piece of paper with a blotch of silver over it. New developers and new developing agents can be obtained from nearly every one of our photographic journals. They are probably all good, only some may be better than others. It is not so much the formula but the way it is used that gives the result. There are probably no two persons using the same plates and developer that will produce the same quality of negative. One will only see that the image makes its appearance in due course of time, will see that it continues to develop, and when he sees that it is sufficiently dense will remove it from the developer. Another will not only see when the image appears but will observe whether it is too slow or too quick, and will add a little force or apply the brakes as it may need. He will observe the exact time when it should be removed from the developer, and whether it should be washed very quickly before applying the fixing, or whether a longer washing would be better.

Whether pyrogallic acid, eikonogen, hydrochinon, iron, or any of the very latest developers should be used, should depend upon the observation of each one using them. Each one may be better for some special purposes than any or all the others. For general use, however, each person should adopt some special developing agent, learn to use it and stick to it. Have also a standard developer; but as there are many exceptions to most rules, so remember that you must look out for these exceptions in the way of different plates, different exposures, and different subjects, and strengthen or weaken your developing agent or your alkali, or add a retarder.

Among all the old or new developing agents "pyro" still holds the lead, and from all appearances will continue to do so. So far as my own observation goes it gives better strength, better detail, better printing qualities, and, for an over-timed or under-timed plate, a better negative than any of the others. It may not make so handsome a negative as some of the others, but it is not the beauty of the negative itself that is wanted, but the beauty of the print to be made from the negative. It is true it may stain the hands, but that can be remedied by using a pair of rubber gloves. The staining of the negative itself, where it goes so far as to be a detriment to its printing qualities, can be easily remedied; but in most cases, particularly where it only leaves a slight olive color, it is much preferable to what is called "a wet plate effect."

You can make with "pyro" a negative as "thick as a board," or one as delicate as the bloom on a young lady's cheek, with the same kind of plate and the same exposure.

With the quickest plate a line drawing can be copied that will leave the lines pure black and the whites white paper, or all the detail in lights and deepest shadows in the portrait of the fairest blonde dressed in her bridal robes. To develop a first-class negative presupposes a correct or nearly correct exposure of the plate. Perfectly correct exposures are and must be extremely rare. It would take a long mathematical calculation and very sensitive instruments to give the exact strength of light with its shade of color, and more exact shutters to our lens than we now have, with an operator at the shutter, capable of taking advantage of all the mathematical and scientific points, to "touch the button" at the exact instant of time to get that exact exposure.

Such being the case, a "standard developer," while being "handy to have in the house," can be very seldom used without some change, if the very best effects are truly sought for.

Have your sulphite of soda and your alkali of a standard strength, add the pyro only when you are about to use the developer, make a little stronger solution of pyro for emergencies and have your bromide ready for use. Then use all with discretion, not only seeing, but observing.

Have you ever thought how much developing a plate is like creation? Do you ever think that you are creating a little world every plate you develop? The developer is poured over the plate, and soon the tops of the highest mountains appear in the shape of the highest lights, then the lower hills as the lighter shadows, then the rolling and flat earth as it graduates into the deep shadows represented by the seas. Usually we so develop our plates that we can say, when finished, "Behold it is good!"

E. Decker.

A Little "Off."—Hayseed (jumping from chair as the camera is pointed at him): "Don't shoot—the blamed thing will go off."

Photographer: "Oh, it's you that's going off. Sit down on that chair again."

ORTHOCHROMATIC PHOTOGRAPHY.

[Presented at the Buffalo Convention of the P. A. of A.]

In my lecture delivered at the late Washington convention, I have given the outlines of the history and description of ortho or isochromatic photography, both terms meaning the same, viz.:

The art of *correctly* or *equally* rendering in monochrome the various colors which in the ordinary process have such a different effect on the sensitive plate, that blue and violet are reproduced much lighter, yellow and orange much darker than they appear to the eye. The orthochromatic process is receiving the highest attention abroad, while on this side of the Atlantic we have been considerably behind the times so far, but with the well-known determination of our people to march in the front ranks of progress, we shall soon make up for lost time, fully acknowledging the importance of orthochromatic photography. Inasmuch as the great problem to make photographs in natural colors is being far from solved, we must aim to accomplish the next possible, to reproduce the colors in monochrome in the true gradations as they appear to the eye.

American manufacturers have commenced to give orthochromatic plates their attention, and I for one have spared neither trouble nor expense to produce colored sensitive plates that meet the requirements of photography in its present advanced state. In the commencement I was assisted by the talented Boisonnas, of Geneva, Switzerland, known in Europe for his success in this direction, but whose experiments were unhappily cut short by his untimely death.

Later on, I availed myself of the offers made by the well-known B. J. Edwards, of London, and Attout Tailfer, of Paris, whose isochromatic plates have a great reputation in Europe, and I have followed their example in adopting the name "isochromatic." I am now in the position to furnish plates that combine great speed and fine quality with good orthochromatic effect without the use of a yellow screen. The yellow screen, which serves to filter the light, and is either a yellow glass placed behind the lens, or a yellow pellicle inserted with the diaphragm, necessarily slows the action of the light, and demands a much longer exposure in direct proportion to the depth of color of the yellow glass or pellicle employed. It also causes trouble and annoyance in focusing.

It has been my aim to dispense with it, and I have succeeded in preparing rapid plates which are sufficiently orthocromatic for landscape and portrait photography without the use of a yellow screen.

For copying oil paintings where long exposures are not objectionable, and where it is imperative to secure the fullest orthochromatic effects, I prepare a *slow* plate especially for this purpose.

It has been stated that the orthochromatic effect can be obtained with ordinary plates, simply by the use of a yellow screen, but this idea is erroneous. The plate must have the elements of color sensitiveness in itself, and in comparing orthochromatic plates, they should be tried without a yellow screen to determine their merits.

Now, let us see what are the advantages of an orthochromatic plate over an ordinary plate, for instance, in landscape photography.

Let us imagine a landscape before us, above the blue sky with white clouds, in the horizon the distant hills, in the foreground foliage in the beautiful shades of autumn. The ordinary plate would take the sky white, being just as sensitive to the light blue as to white rays; and therefore will show no clouds unless they are of a darker shade. The distant hills would be only faintly visible, and the foliage be lacking in detail. The orthochromatic plate would give us a soft gray sky, not white, but with beautiful white clouds; the distant hills just as distinct as you see them in reality, and the foliage with all the various gradations, from the finest high-light to the deepest shadow, every leaf being clearly detailed, and every blade of grass standing out from the rest. In all it gives us just what we see with our own eyes, except the colors. For portraits, we will consider to photograph a pretty rosy-cheeked girl from the country, rosy-cheeked but a little freckled, with a blue dress and yellow trimmings, and with auburn hair. The ordinary plate will give her a fair face, but what a job to retouch all her freckles! The blue dress will appear like a white one, the yellow trimmings will be too dark. Her hair will show a great lack of detail, and appear the same as black hair. While the other plate will give, if anything, a bolder, rounder image, freckles will not be visible to a greater extent than you see them with your eyes, and the portrait is generally smaller than the original, as they are almost entirely invisible. The hair will be of a medium shade, and as full of detail as that of a brunette. The dress will be of a proper tone, the yellow trimmings in harmony with the rest.

Now, for another portrait. A gentleman from the country, with blue eyes and straw-colored hair, fairly sunburnt, and with a clear white forehead. You know these kinds of subjects (I believe there

is no photographer who does not get some of them). In his photograph, the eyes are a colorless spot, the hair too dark, face without the roundness and life it should have, with a solid white forehead. The isochromatic plate, on the other hand, does justice to the eyes and hair, and gives tone to the forehead and roundness and gradations to the face. For copying paintings or colored drawings they are the only plates that can be used with success. The reason for which I do not believe it necessary to further illustrate, as you will observe by looking over the various pictures on exhibition at this meeting. I wish further to state that in developing the isochromatic plates you must bear in mind that they are very sensitive to the yellow and orange light, and nothing but a dull ruby light can be used with safety, with the precaution to keep the plate away from any light as much as possible.

G. Cramer.

SAVING WASTE.

[A Talk before the Buffalo Convention of the P. A. of A. by Mr. Ames.]

THE matter of saving silver waste may appear to be very simple, but it is not. It is easy enough for us all to make waste, and make it in abundance if we have plenty of business, but to save waste requires some skill. It is easy to earn money but to save money requires financial genius. It is just the same in the saving of waste. I suppose that not more than 1 or 2 per cent. of the nitrate of silver that is used in photography and the arts enters in permanently to the material for which it is used. I suppose that by a careful saving, with chemical knowledge carried into practice, that 90 per cent. of all the silver that is used can be recovered. Out of that of course comes the expense of the recovery. It would seem a very simple thing to save paper waste, for all there is to do is to lay it to one side until the refiner comes along; but there are ways in which the paper waste can be saved, and by which it will yield a photographer a larger per centage of profit, and that is to save the paper waste as clean as possible, by not allowing foreign matter to get into it. A great many people, having the idea that it is all going to be burned and refined, think it makes no difference what gets into it, if the refiner only makes it pure. But the foreign matter which you add to the paper waste makes it a great deal more refractory in the refining, especially if you allow mounted cards to get into it, or if you burn your waste yourself, and burn those mounted cards. Clay enters into the manufacture of cards, so that it is equivalent to mixing up earth with your silver. It requires extra expense, extra heat and extra time in order to refine such waste, and then there is a greater loss by way of a small percentage and sometimes a large percentage of silver being carried off into the slag. Therefore to save paper waste, profitably, save it as clean as possible. The best way is not to allow any to go on to the floor at all, nor allow anything to come in contact with it which is soluble.

Many people have an idea that my blotters are richer than my albumen paper, and they think they ought to be allowed a better price. We get blotters varying from good for nothing to quite rich. Very recently I refined two batches of blotters from two different galleries in St. Louis. One batch of 50 pounds yielded 38 and a fraction ounces of metallic silver, avoirdupois. From another batch of 33 pounds, we recovered 3 and a fraction ounces. So you see there was a great difference. Blotters are heavy, and when you put my blotters on to the scale to balance your albumen paper, you have a great deal more paper over the surface of the albumen than you have in the same weight of blotters. You may have an equal amount of silver in the same amount of surface, but when you come to put on enough albumen sheets to balance the same surface of blotter it takes several of them to weigh down your blotter.

As to the saving of wet waste. The best method to employ for this is to put the wet waste print washings, hypo and gold and all, into one receptacle. If you are using a barrel, put it into that barrel; if you are running on a small scale and using a stone jar, put it into that. But in case you put the two together, never use anything but the sulphuret of potassia for its precipitation. You cannot precipitate silver held in solution by hypo with salt or hydrochloric acid unless you use hydrochloric acid in excess, so that you neutralize your hypo, but that is not advisable. Sulphuret of potassia is the best thing.

In the saving of print washings, if you attempt to save them separately from your hypo, and precipitate with salt or hydrochloric acid, which is the same, the fluid forms chloride of silver; it is the chlorine of the salt that throws it down, and it is the chlorine of the hydrochloric acid.

In those cases where your silver solutions are exceedingly weak, you add water, and you run in water as though you had an ocean at command. Now, to illustrate, supposing that you take 1 grain of silver and put it into 1,000 gallons of water. Now, bring a reagent to test that silver, and you have not silver enough to make a test. It is too delicate, and it would be hardly possible, with the most skillful

means, to discover that you had that 1 grain of silver in it. Now, we will take a solution of 60 grains in strength. We add the salt or the hydrochloric acid, as the case may be, and form a chloride of such gravity that it goes down like a rock.

In that case, where your solutions are strong, your precipitation was thorough, but your test was exceedingly weak; the chloride that is formed has not sufficient gravity to fall. It is therefore held in suspense, and you fail to get it down. If you were mixing the two—your silver washings and your hypo—you are increasing the percentage of silver, and then sulphuret of potassia, being a more thorough reagent, your silver goes down more effectually. Your gold can be put into the same place also, because sulphuret of potassia is a reagent for gold as well.

Ever since the Creator said: "Let there be light," and there was light, the world has been advancing, and nature has never stood still. So when the photographer first seized upon the ray of light, and put the harness upon it, photography has been continually advancing. While you are advancing in this art do not be behind, I beseech you, in the skill of saving and recovering your waste. If I could have put into my possession to-day the waste that goes to waste entirely beyond recovery in all the galleries of the United States, I would have a sufficient amount of money to retire and live like a king.

Many people who undertake to save waste are not skillful in it. They are very careful about a few pounds of clippings, forgetting that the biggest part of the sheet of albumen is mounted upon cards, the silver washed out to go down the gutter, while a few trimmings from the sheet are saved. Now, there is a difference in the quality of waste. We can refine waste for two neighbors, who live side by side. Both samples may be perfectly clean, pure as can be, but one will return far more to the pound than the other. Now, there are reasons for this. They both may be silvering with a solution of the same strength, but there is a difference in the weight of the paper more or less per ream. There is a difference in the porosity of paper, a difference in the atmospheric conditions, a difference in the temperature, and all these differences make the paper vary, and more silver will enter into some kinds of paper under certain conditions than enters into others, so that we get from clean waste in recovering metallic silver all the way from four-tenths of an ounce to the pound to even an ounce to the pound from paper scrap. I want to say a few words regarding the quality of wet waste. Now, we will take wet waste from certain cities, and different lots will vary. I have before me now some that came from photographers doing business in St. Louis. I wish to say that the precipitations we get from St. Louis will run from 10 to 20 per cent. less silver to the pound than they will in samples from Cleveland. Now, what is the reason for this difference? Because in the city of St. Louis many of the photographers are using water that is muddy, and these muddy deposits are received with the silver, so that a large percentage of earthy matter gets into the savings in St. Louis, while in Cleveland the water is more pure. But no water is really pure except it be chemically pure distilled water, thoroughly distilled. Many photographers think because they get distilled water coming from some factory running through iron pipes carrying oxide of iron, that being distilled water it must necessarily be pure, while really it may not be as good as the riley water to be obtained in the street.

(*To be continued.*)

AN OPEN LETTER ON PHOTOGRAPHY.

By ADELAIDE SKEEL.

RECENT inquiries in the *The Christian Union* about photography, following the articles lately published addressed to beginners, prompt me to add a word of advice concerning the necessity of systematic study.

Why is it, after we have owned our machines six months or a year, that we suddenly discover we are making crab-like progress, and decide to exchange our kodaks for safety wheels, banjos, or blue monkeys? It has often been regretted that photography was at once so easy and so difficult, that success crowned one's first venture and failure one's second, third, fourth, and fifth; but no amateur will find the pastime which embraces both art and science too simple if he look for the reason of his blunders, nor too complex if he begin aright to study the whole subject. Summer is upon us, is passing now, yet how many are spoiling as many plates as they spoiled last season and wasting developer as freely as they wasted it a year ago! This is discouraging indeed, and one soon throws his outfit aside unless a little book-learning be crammed into his head before he goes again afield to take a dozen more poor views.

"Book-learning?" you ask. "Oh, give me practical experience!"

True it is that there is no teacher like experience, yet don't you think her quarter-bills rather large? To study chemistry, for instance, at this school

is to spend a deal of money to no purpose save to enrich the druggist who sells muriatic acid one day and hydrochloric another to the ignorant purchaser who supposes he is getting two different things instead of one in two different bottles. Again, it does not require a profound knowledge to know that sulphite of soda preserves pyrogallol, and sulphate destroys it, yet when the proof-reader of the magazine from which the formula is taken puts an *a* instead of an *i* in type, considerable developer and patience may be lost. Few of us confess it, yet I doubt if one out of six amateurs can define acid or alkali, hence all directions more specific than the naming of solutions A and B fall on deaf ears. Photography is twice as enjoyable when we understand, or begin to understand, a few of the mysteries which no blind success nor chance blunder may reveal. The formation of camera clubs grows from the burning desire we all feel to tell of this or that experience, but too often, when only the best views are shown, the meetings become mutual admiration talks rather than educational. We weary ourselves and our neighbors with questions whose answers we cannot give, while the local photographer learns to dread the sound of our steps on his stairs. Poor man! No wonder he charges exorbitantly for all work done for amateurs when he is obliged to give so much instruction gratis.

Intelligent study carries one beyond chemistry, for, besides bringing up the picture, there is the taking of it; so whoever becomes interested in optics will look a little into focal lengths, numbered diaphragms, and much else besides. It is hardly necessary to touch on the hackneyed art questions concerning photography, yet I fancy few who love the camera will be indifferent on the vital subject of composition.

Practically, I know of no better school of photography than that of Chautauqua, whose summer session is held at Chautauqua Lake, and winter headquarters are 423 Broome Street, New York City.

A correspondent, paying the absurdly low fee of 50 cents a year, has the privilege of writing as often or as seldom as he likes to an able professor, who prescribes a course of readings, criticises prints sent him, answers all questions asked, and in his turn sends the student semi-annual examinations, which, if answered correctly, entitle the graduate to a diploma.

If one prefer to study without special direction, the following list of books may be found useful:

Roscoe's "Elementary Chemistry," published by Macmillan. Price, $1.25.

"Photographic Instructor." $1.

Wall's "Dictionary of Photography," $1.50.

Robinson's "Landscape Photography," $1.50.

All published by Scovill & Adams Company; also "Annuals" and "Mosaics," international, American, and English, galore.

Far be it from me to say which photographic magazine I prefer, but were I to advise any one to subscribe to more than one, I would suggest that an English as well as an American periodical be chosen, and if the amateur be a linguist, a French, German, or Spanish could well be added.

Finally, keep posted concerning present issues, reading always the freshest-fallen information from reliable sources, since in these discovering days manna rarely keeps over night.—*Christian Union.*

Notes and News.

The Photographers' Association of Iowa will hold its second annual convention in Des Moines, on August 4 and 5. All photographers of Iowa are cordially invited to be present.

The Photographic Association of Ohio will hold its Convention at Columbus, August 11th and 12th. Full particulars may be obtained from the Executive Committee, consisting of J. M. Appleton, W. C. Potter, and L. C. Overpeck.

Photographs of a Great Event.—James H. Ten Eyck has procured three large photographs taken during the ceremony of laying the corner-stone of the Masonic Home at Utica last month, which he intends to present to Masters Lodge No. 5, F. and A. M.

China has a Camera Club of which the Rev. W. B. Bonnell is President; Dr. N. J. Milles, Vice-president; W. S. Ames, Treasurer; and J. Mencerini, Secretary. At a meeting of the club, held June 10th, Professor R. Hitchcock, of the Smithsonian Institution, read a paper on "Development," which will be found in another column. It was decided to have an exhibition under the auspices of the club in October next.

A Chicago Photographer claims to be doing a good business among the young men of that city by photographing the pictures of their sweethearts on their arms, when finished appearing similar to the tattooing process with the exception of the colors.

The Surveyor General of Canada, Mr. Deville, has adopted a novel method of surveying in the Rocky Mountain region of the Dominion. It is to photograph the country by a specially designed camera. He considers the photographs as accurate as a plan laid down by means of a protractor.

"The Scovill Photographic Series" is full of articles on many branches of photography that are of great value to those who handle the camera. They contain many valuable suggestions and deal with subjects about which all who take a pride in producing good pictures will feel an interest.—*San Francisco Call.*

We Notice that the manufacturers of silverware have been compelled to cease using the American tissue paper for wrapping silverware in for the reason that after a short time the goods become spotted and streaked, consequently only foreign tissue paper is now used, as it has no effect on the silver. Makers of dry plates and sensitized papers will note the above facts and save time and money.

Portrait of Ex-Speaker Randall.—The Legislative Committee has arranged for the painting of the portrait of the late Congressman Randall, to be hung in the Speaker's room of the House of Representatives at Washington. W. R. Greaves, of Warren, Pa., is to do the work, which was authorized by the Legislature just adjourned, and the portrait will be ready to be taken to Washington at the opening of the next Congress. A picture of ex-Speaker Grow is also to be painted, by order of the Legislature, to be hung in the Capitol at Washington.

Must Not Publish Her Photograph.—Judge Lacombe issued an order granting an injunction restraining Nicholas Wischt and Jacob Schmidt from publishing or selling the photograph of Belle Archer, the well-known actress. The motion was granted in the suit brought by Photographer Benjamin Falk.

Falk has taken some excellent cabinet photographs of Joseph Arthur and Little Tuesday. The child does not seem to be at all impressed by the fact that Mr. Arthur wrote "Blue Jeans." She looks up at him with an audacious air from under the chair in which the playwright is seated.—*Dramatic Mirror.*

The Contributors to The American Annual of Photography for 1892 have been augmented during the past week by the following well-known photographic writers: Andrew Pringle and William Lang, of England; the Hon. A. A. Adee, Assistant Secretary of State, Washington, D. C.; J. Wells Champney, the well-known artist; Lieut. Ralph Sacher, Alfred Stieglitz, Henry J. Newton, Thos. J. Bray, and several others. Several new pictures have also been secured for the book.

Mr. J. C. Hemment, the instantaneous photographer, who won the $100 cash prize at the late Buffalo Convention of the P. A. of A., made a number of excellent photographs of Dixon walking the wire across the Niagara whirlpools. This is the first time such photographs have been made. Mr. Hemment used his Scovill hand camera. He will describe his method of work in the forthcoming issue of the "American Annual of Photography," and several of these instantaneous photographs of Dixon on the wire will be used to illustrate the article.

The Prize Camera selected and awarded to Mr. Alfred L. Simpson, in the photographic contest of *The Sunday Press*, is a Hetherington & Hibben Magazine. Mr. Simpson is particularly fortunate in securing this camera as a prize.

The Hetherington Camera.—We notice with great pleasure that the joint exhibition held by the Society of Amateur Photographers of New York have awarded the medal for excellence in photographic apparatus to the Hetherington & Hibben Magazine Camera. The award is well merited, as the camera certainly combines every facility for the amateur or professional photographer. We also note that Mr. Alfred L. Simpson, the well-known amateur, has become the trade agent for the above camera. The office is 64 and 66 Broadway, New York.

The Photographic Convention of the United Kingdom of Great Britain was held in Bath, as announced, from Monday, July 6th, to Saturday of the same week. The members of the convention were formally received by the Mayor of Bath, to whom the officers and members of the council were introduced by Prof. C. H. Bothamley, the retiring President. Mr. William Bedford, his successor, then took the chair and presided at the meetings throughout the week. The president's address was listened to with the greatest interest. It reported the progress which had been made in photography since the last convention, covering all the ground in an able manner. Numerous other addresses were made, and several excursions were participated in as usual, but during the first days of the convention the weather was so stormy that little photographing could be done. H. P. Robinson was elected President for the ensuing year, and F. P. Cembrano, Secretary. Edinburgh was chosen as the city in which to hold the next convention.

"The Man About Town" at the Buffalo Convention.—THE Photographers' National Convention has left a harvest of bad feeling, and I shall not be surprised to see an outbreak in a number of the papers devoted to the art and the allied trades. The trade people complain that favoritism was shown in the sale of space and that pet locations were sold to some exhibitors before the rest were given a chance to engage room. Several of the competitors for the "Elaine" Prize quite audibly hint that favor was shown and that three of the Executive Committee who selected the judges were interested parties. The compositions that won, it is claimed, were no compositions, being merely single figures and not telling the story. Elaine in one scene wears a Marguerite dress—and the story represents the fifth century. Launcelot is a boy with a virgin beard—Launcelot, the chief Knight in England, the flower of Arthur's round table. "Miss Barnes should have ranked the winner," a good judge said to me. "Her photographing was inferior, but her work was historically correct." McMichael's compositions were far more elaborate and showed a higher reach after a realization of the whole purpose of the poet. His Launcelot was a noble figure—I suspect that Horace G. Knapp, the architect, posed for it—and his Elaine was a lovely young woman whose face is well known and whose

girlish figure admirably filled the ideal of the poet's gentlest heroine. There was little opportunity in "Elaine" for such forcible work as was shown in McMichael's "Enoch Arden." Every one knows the story of Enoch, and the story centers all in one face and figure, and Mr. McMichael gave it a concentration of passion and sorrow that well interpreted the poet's story. In "Elaine" the story, or more of it, must be told. He has told it with dignity and feeling and with fidelity to the poet's purpose in the compositions which took the second prize at the recent exhibition. I think the idea that "McMichael had had honors enough" did more than any other prejudice to keep him from the first prize. The remark was freely made at the convention. Envy is a potent force among artists of all kinds and degrees, from musicians up and down.—*Buffalo News*, July 19, 1891.

The Camera Must Go With the Ticket.—Some years ago the Director-General was the great man of a World's Fair, but considering an extraordinary line of special artistic development since that time, the most important functionary now must be acknowledged to be the official photographer. The boss of this department for Chicago will be Mr. Camera Dryplate Arnold. Mr. Arnold's special work will be to take the buildings as they are built. Who shall officially photograph the Fair at its height for the purchases of the general public is for later selection.

Another and much more important question relates to the general right of photography when Chicago shall open the show gates. The number of cameras of the amateur automatic persuasion is increasing in far greater ratio than the population. The adaptation of larger and more satisfactory sizes to the portable button-pressing forms has progressed of late so successfully that the next few years may expect an enlargement of camera-carrying class, such as the already marvellous extension of the photographic fancy could scarcely suggest.

The spirit of enterprise that animates the use of the camera is so vigorous, and the number of its devotees will be so great by 1893, that not only will thousands of photographers be among the visitors of the Chicago Fair, but thousands will visit the fair for the simple reason that they are photographers, and know that they will find in such an aggregation of men and things a memorable opportunity for the creation of interesting negatives.

We dissent, therefore, from the proposition of our esteemed contemporary, THE PHOTOGRAPHIC TIMES, that in Chicago, as in Paris, the privilege of photography should be sold to applicants at sums fixed for amateurs and professionals. This branch of the artistic public is so large and its work so desirable that subjection to such discrimination from the rest of the population becomes an injustice. What more magnificent monument could be erected to the memory of Columbus than the recognition of the right of free photography? It is an indispensable feature of the scientifically progressive society that enjoys the other time-honored blessings of the United States.

At the great Columbian event a tax on cameras is not to be thought of. Let us all take views, if we desire, upon no other condition than the legal entrance into the grounds by the customary surrender of a ticket.—*N. Y. Sun.*

THE VOLUBLE SITTER.

"How about that promised story of the young man?" queried the reporter of the *Charleston World*, as he perched himself on a papier maché rock in the photographer's operating room.

"Well, now that I have a few leisure moments I'll give it to you. Some weeks back this particular individual came in to have his photo taken. He was very voluble and started in to relate the history of his illustrious predecessors, ancestors, etc., and it don't take a large bump of imagination to see that it was no picnic for me.

"Of course I got my scenery, accessories and plate ready and while giving him a position be began telling me all about why he was having it taken. Naturally this was about the style of conversation that ensued during the process; the young man begins:

"'Say, you know I want you to do your level best on this, cause its going to Sara. Sara is my girl——'

"'Just stand a little more this side.'

"'And she's out in Texas. Mighty good-looking girl too. I haven't seen her in over a year, and this is for her. Now make it——'

"'Do you want full length or three-fourths?'

"'Full length. All of me. Sara wouldn't be satisfied——'

"'Now, then, keep perfectly still.' For notwithstanding all his talk I had succeeded in fastening his head to a head-rest, and if he would keep his mouth shut just a second I could have got him.

"Click went the instrument. But not quick enough. Simultaneously he uttered 'Sara,' and the plate was spoiled. It took four plates to get him."

"Did you hear from it later?" asked the reporter.

"Here is a proof of that," and he handed out a photo of the bride and groom.

"Then there was another gentleman who came in for a sitting. He was an elderly man, his face—at least that part of it not covered by whiskers and freckles—was a mass of wrinkles, more than usual for a man of his age, and the wrinkles were deeper than ordinary too. He wanted to have a photo that wouldn't show his facial defects.

"Of course we employ the services of a retoucher, whose duty it is to soften the wrinkles, eliminate unnatural blemishes and tone down the harsh lines that come from lighting. Well, I took a negative and it was a corker! Each wrinkle seemed to vie with the others in getting just the way it ought not to be. I shifted the sitter and took another that was fully equal to the first. Then I let him go.

"I issued instructions to the retoucher to make the face as ordered by the sitter, and it was done.

"Ten days later he came for his pictures. I had feared the result and made only one, for it looked like a lad who had just come of age. Strange to say, he was as pleased as a baby with a new toy, and he doubled his order.

"In contrast with the general complexion the bright spot in the eye of a black person is apt to be reproduced in the likeness as a white speck. 'I ain't got no specks in my eyes, mister,' the sitter usually complains. One day last summer I had carefully posed a rural darky, whose eyes would roll most alarmingly. Finally, I said: 'Look right into the instrument now,' and exposed the plate. At the word he jumped out of his seat toward the camera and put his nose almost in contact with the lens in his anxiety to

obey instructions. As you may imagine, I had to do him over again.

"The country lovers are always funny. They must always be taken in affectionate attitudes, but their favorite pose is with the girl standing up and resting her hand on the shoulder of her young man, who is seated. Sometimes she insists upon having her arms around his neck, while he looks submissive and resigned. Such pictures make part of the history of rural families, affording to future generations a notion of what the old folks looked like when they were young. The young people gaze upon the portraits with affectionate interest, though instinctively refusing to realize that grandpa and grandma ever were so youthful. Quite as amusing as the lovers are the elderly couples, who invariably sit or stand side by side. They are much more particular than their juniors about preliminary prinking, the old gentleman and the old lady smoothing down their thinned and whitened locks and otherwise titivating, as if never to be satisfied that the camera will see them at their very best.

"Babies are my most troublesome customers. Their parents very often urge that their pictures should be made for less money because they are smaller. To do infants well one should have the most favorable possible photographic conditions—an extra-rapid lens. Such conditions are not at the command of a traveling photographer, and his distresses are proportionate. No matter how hideously ugly the child is, he is expected to make the portrait beautiful."

The Editorial Table.

Part Second of the American Dictionary of Printing and Book-Making, published by Howard Lockwood & Co., at 126 Duane Street, New York City, has been received. This important work comprises reference to all that is known of the art from the earliest to the present time—technical, historical, and biographical. It will be the most comprehensive book of the kind ever published, containing in all 600 pages, profusely illustrated. Part II carries on the subject from Blatt to Chinese printing.

From Bill & Overton, of Cleveland, Ohio, we have received an excellent likeness of General H. Q. Sargent, the popular photographic merchant of Cleveland. This is a picture which won a great deal of favorable criticism at the Buffalo Convention of the P. A. of A. It is so good a likeness of General Sargent, as well as so superior a specimen of portrait photography, we shall have it framed and hung in our editorial rooms.

O. H. Peck, of Minneapolis, Minn., has sent us his catalogue of photographic supplies, dated June, 1891. It is a large-sized catalogue containing nearly two hundred pages, in which may be found described and priced about everything which the photographer, either professional or amateur, could desire. Mr. Peck's address is 217 and 219 Second Avenue, South, Minneapolis, Minn.

W. D. Boyce, publisher of the *Saturday Blade*, sends us with his compliments a new patent combined card case and memorandum book, which we find very useful, taking the place of two books, and thus releasing one vest pocket.

But Once.—"No man likes to show trouble and worry upon his countenance. I suppose there is only one time when a man likes to see his face lined with care."

"When?"

"When his photograph is being made."

Queries and Answers.

113 B. W. B.—1. How can I prepare a ray filter to be used with orthochromatic plates? 2. Is the ray filter an absolute necessity for landscape work?

113 *Answer.*—1. Add aniline yellow, aurantia, dimethyl, orange, or tincture of curcuma to plain collodion and in quantities to produce desirable intensity of color. With it coat white, thin and plane parallel glass. Mr. Carbutt prepares excellent ray filters; they can be had at the Scovill & Adams Co.'s stores, and cheaper and better than you can probably make them. 2. No. In ordinary landscape work ray filters are not needed. But were a distant mountain range the background to the picture, or if it be intended to photograph instantaneously floating clouds along with terrestrial objects a ray filter of moderate intensity would become necessary. Very intense filters destroy atmospheric effects and perspective, because they suppress the action of blue too forcibly.

114 PRINCETON.—What is the chemical composition of tungstate of soda, and how does it act in the process of toning?

114 *Answer.*—Tungstate of soda is a soluble compound of tungsten trioxide (WO_3), sometimes called tungstic acid, with soda. It is of slight alkaline reaction, and said to confer to the gold toning bath the property to tone albumen prints to a positive black more readily than other neutralizers. We find the simple borax bath to do quite as well, and with ready sensitized paper probably better.

115 W. T. S. of Ohio, wants to know the most practical and reliable method of printing, yielding on the average satisfactory results of reasonable permanency.

115 *Answer.*—The albumen paper method stands as yet peerless among all others. It is needless to speak here of the many valuable points of other methods, but we can assure you, a good albumen print will ever answer all demands of amateur or professional. Print upon Three Crown paper sensitized by direction of the manufacturers, tone according to any of the various standard formulas, treat the prints as directed in "The Photographic Instructor," and mark the result. If you do not wish to silver the paper yourself, we advise you to use the S. P. C. ready sensitized, of excellent quality; it gives equally good results.

116 MISS FRIDA M. has sent us a very handsome picture of an interior, but its beauty is much marred by halation around an oval window nearly in the center of it. The query is: Is it possible to take the halo out?

116 *Answer.*—Try to rub it off with an alcohol moistened rag. You may not be able to rub off the halo entirely, but nearly so. It is a delicate manipulation, requires much patience and circumspection, but much safer than Farmer's reducing fluid you proposed to employ.

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AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

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READ what Mr. John C. Hemment, the celebrated photographer of race-track subjects and staff photographer of *Frank Leslie's Magazine*, says about the Morrison Wide-Angle Lens:

BROOKLYN, July 21, 1891.

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There is something in this lens—a peculiar quality which I am unable to describe—which gives the best detail, depth, and clearness, with a notable absence of harshness, which I have tried in vain to get with other lenses. It may be the glass of which the lenses are made; it may be their peculiar construction; I know not; but I am inclined to think that it is the result of the brain which conceived the lens. At all events, I am always willing to acknowledge a good thing when I come across it, and it affords me pleasure to bear testimony to the excellence of the Morrison Wide-Angle Lens. Yours very truly,

JOHN C. HEMMENT.

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JOHN H. MEINERTH, Cohoes, N. Y.

STOLEN.—A number of new lenses, branded "Service," "Franklin," "Dolphin" (W. A.) and "Haworth" (W. A.), were stolen from our store, July 20th; photographers are requested to look out for them and to advise us if they come across any traces of them.
JOHN HAWORTH, 641 Arch St., Philadelphia, Pa.

FOR SALE.—Patent right of Photographic Shutter.
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address
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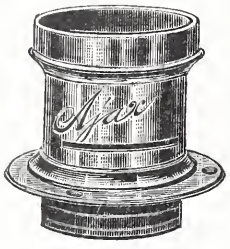
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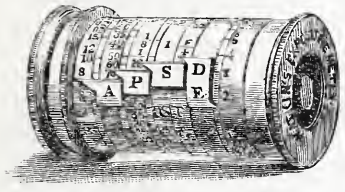
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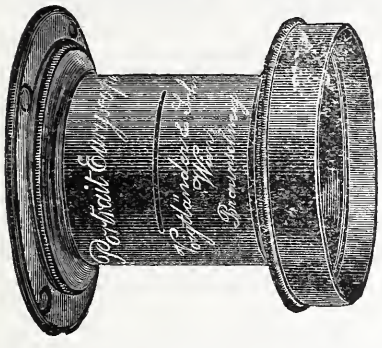
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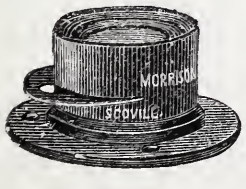
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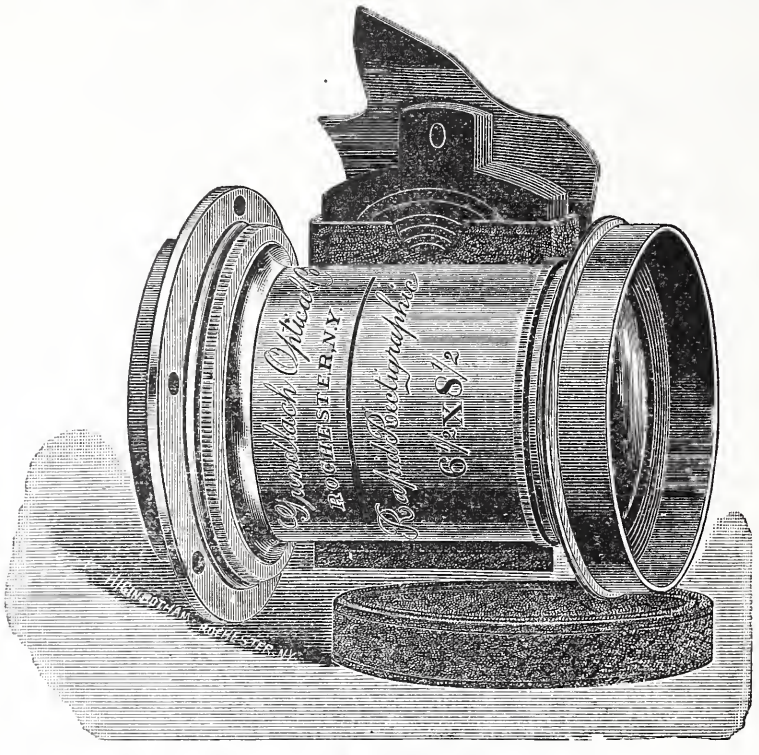
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6..1	"	...8 x10	"	... 8	" ... "	30.00	
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8..1½	"	...14x17	"	...14	" ... "	50.00	
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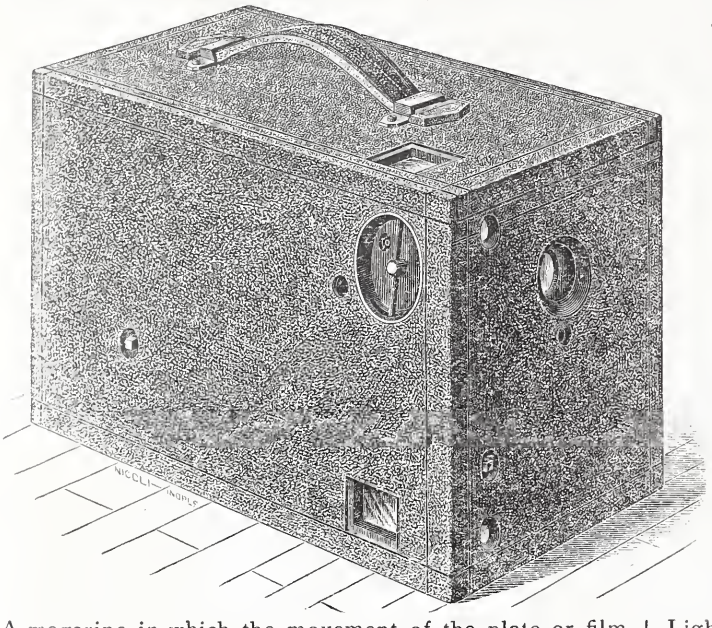
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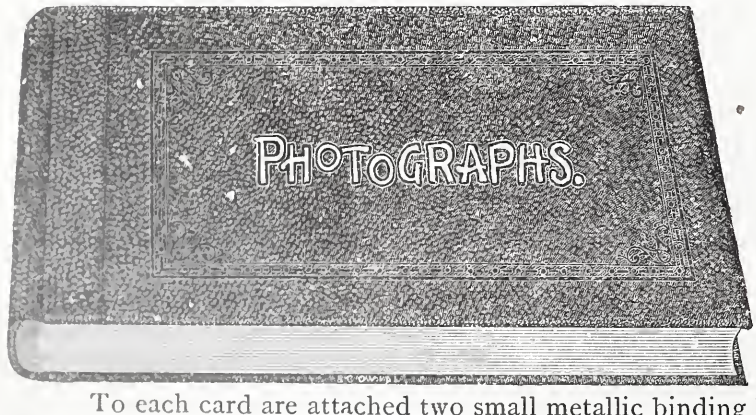
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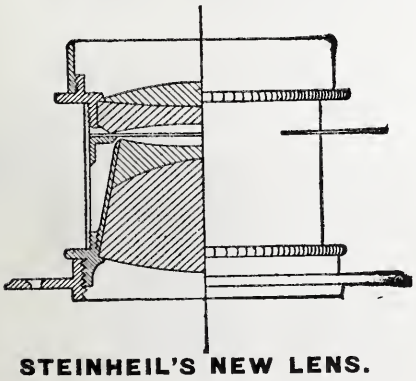
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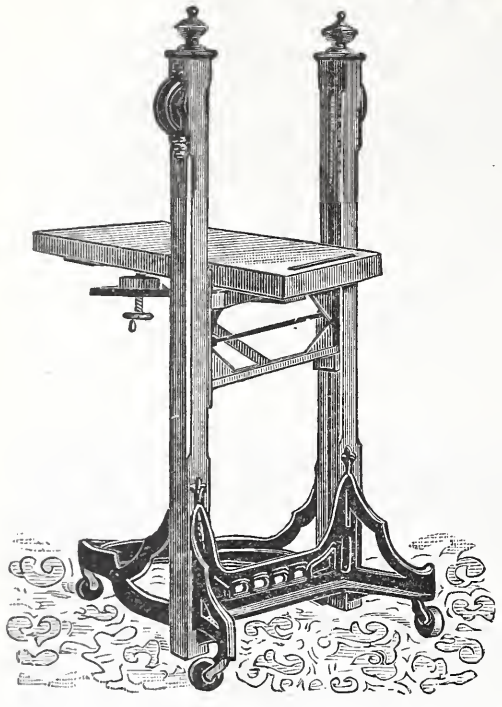
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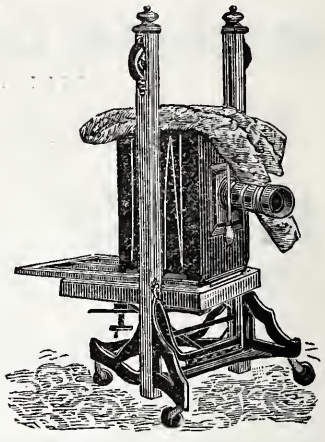
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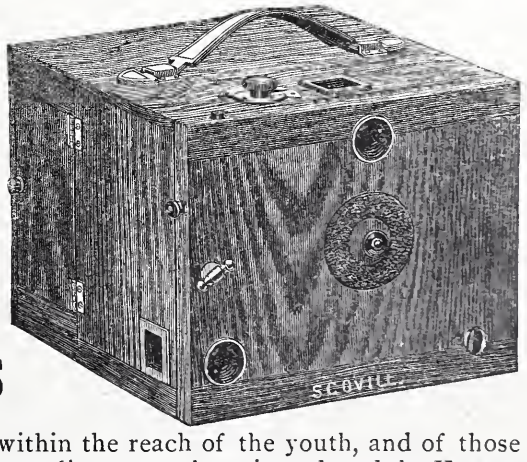
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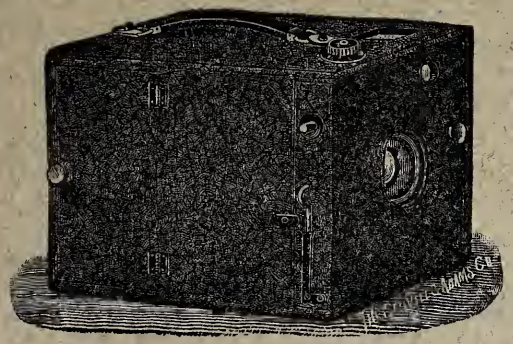
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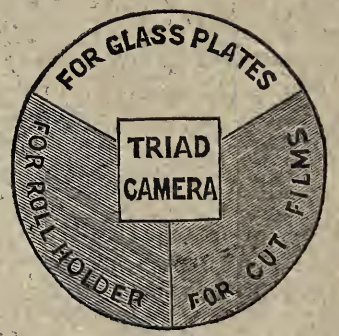
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PHOTOGRAPHIC TIMES (B)



MISS ADELAIDE SKEEL, PHOTO

N.Y. PHOTO-GRAVURE CO.

BUT A CAT AND BUTTER MAIDEN.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, AUGUST 14, 1891. No. 517.

A PORTRAIT OF THE MORNING STAR.

OH! did I wish to paint the morning star,
And semblance of a human visage use,
That seems to carol Christmas from afar,
In beauty as our day-dream visions are,
Thy face, sweet youth, were that my brush would choose.

O bright boy-countenance, whose clear blue eyes
Glowing beneath thy dusky, brown-tinged hair,
Break on the gaze a heavenly surprise,
And seem could send from out the dawning skies
A ray of daylight thro' the early air.

Leila R. Ramsdell.

BUT A CAT AND BUTTER MAIDEN.

OUR charming figure picture this week is from a negative by Miss Adelaide Skeel, of Newburgh, N. Y., who is well known to the readers of our magazine through the interesting contributions of her pen. Though we have shown from time to time in these columns reproductions from her negatives, illustrating her interesting stories and sketches, this is the first full-page picture which we have had the pleasure of presenting to our readers. In regard to the picture, "I can only say," writes Miss Skeel, "that it was taken on a Carbutt special, against all portrait laws, in bright sunlight, late in the afternoon, with stop $\frac{f}{16}$, Morrison lens. I wanted to have a drop shutter view, but the drop was rheumatic and would not drop, so I used the small diaphragm mentioned above, and made a time exposure.

"Pussy could not be coaxed to lap milk off the top of the churn," she continues, "being very realistic in her tastes, and finally posed herself at the overturned pail. I developed the negative with pyro, because I think eikonogen—but that 'belongs to another story,' as Kipping says."

WE begin this week the promised series of articles on the Albumen Process, by Andrew Pringle. Though we printed a number of editorials on the same subject several weeks ago, the articles by Mr. Pringle which we begin this week will be none the less interesting; indeed, one series complements the other, so that by reading both the subject is mastered from different standpoints. There will be four articles in the series.

THE ALBUMEN PROCESS.

I.

IN a leading article in the May-day issue of this journal I find a very pregnant and important plea for the albumen process, particularly for the production of lantern slides and transparencies for photo-mechanical printing processes. The writer dos not put his arguments one whit too strongly, for of a truth this grand process has been far too much neglected in the years of the more immediate past. There is no doubt that with gelatine emulsion, containing various sensitive silver salts, we can make very fine slides, and it is possible to make, with collodion emulsion plates, slides that will surpass even the gelatine slides; but there is a *something* in a good albumen slide or transparency that makes the process stand unrivalled among slide processes. The writer touches with perfect aptitude on the omission by several authors of this process, and I may as well confess at once that had I known as much of the albumen process when I wrote either my book on photomicrography, or that on lantern slides as I know now, this process should have occupied a very prominent position in both of these works. I had certainly worked the process in past years in a kind of experimental way, but had not really made a study of it with a view to evoke from it its best results. Things are changed now, in this respect, for I devoted not long ago several months to careful working of several collodion processes

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and the albumen process for slides. I may pass over without remark the collodion processes, but I soon found that the albumen process stood so far above others that in the end I adopted it almost exclusively for slide work when it was a question of contact-printing, and the best possible result irrespective of time and a little staining of the hands. I may say that I have looked up and studied all the late literature of the subject, and I am bound to own that so far as I can see the writers for the most part appear to have copied their information out of old books without having taken the trouble to try the process. At least this is the impression I get from a perusal of some of the directions given in late books.

The writer of the article which I so much appreciate speculates on the supposed causes that may have led to the decay of the albumen process, and as it is always well to point out the weak as well as the strong points of any process which we are about to discuss, I may at once state what appears to me to be the troubles and difficulties of the process. In the first place the sensitiveness of the plates is very small, so much so that we may consider it "ruled out" for any but contact printing. And indeed the exposure, even to artificial light, as gaslight, is so long as to constitute an objection to many workers. Even magnesium ribbon requires quite a long time to produce the necessary effect, and in this case the expense would amount to a sum not to be lightly treated. At the same time the plates which I propose to describe will not take such a tremendous exposure as "six to eight minutes in the shade," as directed by one writer.

The other weak point is one which I fear will touch the modern amateur on a tender point—I mean the points of his fingers, and indeed well up to his elbows at times. I refer to the *staining* which is pretty sure to mark the really earnest "albumenist." True, there is no absolute necessity to stain the fingers, but I am willing to lay small odds that he who works the process to any great extent will show it on his hands.

Further, we cannot develop a dozen albumen plates in one dish in a minute or two, as we can gelatine plates of to-day. But if method is followed and plenty of dishes are available, the process need not be so very tedious or time-consuming as it would seem to one working one plate at a time. And lastly, whatever be the disadvantages, the results amply repay us for them all; for as our Mayday writer says, "in transparency they rivaled the plates made by the old collodion process, and in detail and sharpness they were even superior to slides made by that process." For slides from micrographic negatives in particular they are far superior to all other plates in my experience.

I claim for albumen slides that they have the qualities of transparency, of the finest "grain" of any kind of slide, and of tones not only very beautiful but variable at will with greater ease and certainty than in any other process whatever. When we come to tone our plates—which, by the way, we do in daylight—we start with a red tone and a fairly dense image, and we carry the toning just to the point we desire. The more tedious part of the operations can be performed on a great number of plates at a time; the plates so prepared require but little further treatment, and after that treatment they will still keep good for many days, if not weeks. The plates, before they are sensitized, will keep indefinitely in any reasonable dry place. And lastly, the chemical preparations and operations are of so simple a nature that failure is practically impossible, with the sole exception of the exposure, which of course has to be learned by experience.

Before we plunge *in medias res* it will be well to give our readers a general idea of what the process is. Originally the process as worked by Messrs. Ferrier and Soulier, of Paris—and their work has never been surpassed, though I believe they use now a process more resembling that which I am about to describe—was one of sensitized albumen only. The albumen containing an iodide or bromide, orboth, was put on to the plain glass plate. But any one who has worked with albumen in these conditions will know the difficulty of keeping dust from settling on the surface and spoiling the plate, and it was pretty well known that the original workers found this difficulty. I have even heard it said that M. Soulier used to coat his plates, being himself *in puris naturalibus*, or even without them if possible, but I do not guarantee the strict accuracy of this statement. Anyhow the process became much more workable when the plates were first coated with porous collodion. This then is the first step in the process. The collodion is of such a nature as to be easily permeated by the liquid albumen which contains an iodide and is flowed over the collodionized plate and allowed to dry on it. Dust does not now tend so readily to stick to the plate, and if it does it sinks into the colodion film and does very little harm. The film is next sensitized in a very acid solution of silver nitrate, is washed, and is then ready for exposure. After exposure, development is effected by—usually—acid pyro and silver nitrate, as this gives the best results; but it may be developed with alkaline pyro, and in that case requires much less exposure. I mean, however, to confine my atten-

tion to development with acid-pyro-silver. As a rule the plate after development has a very unpleasant color, and is then toned with gold to a suitable tone, but there are several toning processes open to us.

In my next I hope to write something more practical, and to describe minutely some of the first steps to be taken.

ERRORS, OLD AND NEW.

MANY years ago, in the prehistoric days of "collodion emulsions," my attention was attracted to a set of tables in THE TIMES, computed with the view of aiding the convenient conversion of metric equivalents into our more familiar "grains" or "minims;" unfortunately, however, it was only too apparent that their compiler was an Englishman, and totally oblivious of the fact that our weights and measures are far from identical with those of the *British Pharmacopœia*, from which he evidently obtained the material for his tables; the latter were, therefore, not only useless, but worse—they were misleading.

I prepared, at my earliest convenience, a correct set of tables, and the editor was good enough not only to publish them in THE TIMES, but also to express his appreciation of them in a private letter inviting further contributions.

Having occasion, of late, to refer to several recent "Annuals," it was noticed that, year after year, reprints from the "British Journal Almanac" appear, which, though accurate enough in Her Majesty's dominions as being based on the "imperial" standards, are seriously incorrect on this side of the sea, and I herewith forward recomputed tables, which are correct, trusting our genial friend the editor of the "Annual" will cut them out and paste them in his hat prior to stereotyping for the 1892 issue!

En passant: a few words anent the 1891 "Annual." On page 354 we are told that the "gramme" is equal to 15.432 grains, but on the adjacent page it is rated at 15.436 grains.

On page 353 the cubic centimeter is valued at 16.896 minims, and this is true in England only. We are next told that our drams, solid and fluid, and minims and grains are related to each other as the gramme and cubic centimeter.

If this means anything, it implies that as the cubic centimeter of water weighs a gramme, so does our fluidrachm weigh a dram, and our minim weigh a grain. A more confusing mixture of truth and error seldom, if ever, has appeared in cold type!

The British fluidrachm of water weighs a drachm, at 60 deg. Fahr., but this is *not* true of our United States fluidrachms; neither is the statement correct with regard to either English or American grains and minims; for, as we shall see, later on, our U. S. minims are $\frac{1}{480}$th of the fluidounce, which weighs 455.7 grains; the English minim is $\frac{1}{480}$th of a fluidounce that weighs only 437.5 grains, while the grains are themselves alike, but the English ounce contains 437.5 of them, and the American pharmacopeial ounce is the Troy or apothecaries ounce of 480 grains! Hence, the criticized statement is wildly out of truth.

Our United States measures of capacity are derived from the old "wine gallon," which contains 8 pints, each of 16 fluidounces; the gallon is equal to 231 cubic inches and weighs 58,328.886 grains at 60 deg. Fahr., or is equal to 3,785 cubic centimeters.

The "imperial" gallon has a capacity of 277.3 cubic inches; contains 8 pints, each of 20 fluidounces; the gallon weighs 70,000 grains at 60 deg. Fahr., and is equal to 4,543.5 cubic centimeters.

From these facts it is easy to see:

The English pint is one-eighth of 70,000 grains, or 8,750 grains; the fluidounce is one twentieth of this, or 437½ grains of water.

Our U. S. pint is the one-eighth of 58,328.8 grains, or 7291.1 grains, and the fluidounce is one-sixteenth of this, or 455.7 grains of water always at 60 deg. Fahr.

Hence, our gallon is *smaller*, but our fluidounce *larger* than the corresponding English denominations. Both ounces are divided into 480 equal parts called "minims," and, therefore, as the ounces are unlike, so must also be the minims.

We have seen that the gramme is rated at 15.432 grains Troy; therefore, by simple division the grain must be equivalent to 0.06479895 grammes, or almost $\frac{65}{1000}$ of a gramme, or 65 milligrammes.

The "minim," English, weighs $\frac{1}{480}$ part of 437½ grains, or 0.9114583 grain.

The "minim," U. S., is a 480th part of 455.7 grains, or 0.9493 grain, so that both ounce and minim are larger than the corresponding B. P. denomination, an encouraging fact calculated to cause the American eagle to scream and Her Majesty's own private and particular lion to shed the bitter tear!

Following out our calculation we note: 1 minim "U. S. P." equals 1.041 minim "B. P.;" 1 minim "B. P." equals 0.96 minim "U. S. P.:" 1 grain Troy is the weight of 1.0534 U. S. or 1.098 B. P. minims.

The following table is computed true to the nearest half grain or minim, as the case may be, so it will prove a sufficiently near approximation to the required metric equivalents.

U. S. P. STANDARD.

Gramme or c.cm.	Grains.	Minims.	Gramme or c.cm.	Grains.	Minims.	
1	15½	16¼	15	231½	245	The "kilo" or kilogramme, the 1,000 gramme weight, is equal to 32 oz. 72 2-10 gr. "Troy or Apothecaries" weight, or 2 lbs. 3 oz. 119 7-10 gr. Avoirdupois.
2	31	32½	16	247	260	
3	46	49	17	262	286	
4	62	65	18	278	292½	
5	77	81	19	293	309	
6	93	97½	20	308½	325	
7	108	114	30	463	487½	
8	123½	130	40	617	650	The "liter" or 1,000 cubic centimeters, or bulk of water that weighs 1 kilo, is equal to 2 pints 1 fluid oz. and 415 3-10 minims, U. S. P. standard, or our glass graduates as commonly sold by reliable houses.
9	139	146	50	771½	813	
10	154	162½	60	926	975½	
11	170	179	70	1,080	1,138	
12	185	194	80	1,234½	1,300½	
13	201	211	90	1,389	1,463	
14	216	227½	100	1,543	1,625½	
..	....	.. .	1,000	15,432½	16,256⅓	
..	....	...	....	1 kilo.	liter.	

The grains and minims are easily reduced to fluidrachms and fluidounces, or drachms and ounces Troy by my readers, if they will only remember that 60 grains or minims go to the solid or fluidrachm, and 480 grains or minims, or 8 drachms solid or fluid, go to each U. S. P. ounce, solid or fluid.

Thus the table gives the value of 90 grammes as 1,389 grains, of 90 cubic centimeters as 1,463 minims. How many ounces is in each?

Dividing 1,389 by 60 for drachms, we have 23 drachms 9 grains. As 8 drachms go to the ounce, there are 2 ounces in the 23 drachms and 7 drachms over, so we have—in 1,389 grains there are 2 ounces 7 drachms 9 grains. In the same way we find 3 fluidounces and 23 grains over, to be the value of 90 cubic centimeters or 1,463 minims.

Nelson B. Sizer, B.Sc., M.D.

DEVELOPMENT.

(*Continued from page* 396 *and concluded.*)

Next as regards the alkali. The alkali starts the action of the reducer, and controls the progress of the reduction. It is therefore a natural consequence that the stronger the alkali the more energetic the action will be. It also follows that if a plate be insufficiently exposed for an ordinary developer, it can be fully developed by one containing more alkali. The only limit to the proportion of alkali is the resistance of the film of gelatine. Gelatine softens when treated with a strong alkaline solution, but if we could make sensitive films with some substance which alkalies would not affect, the necessary time of exposure could be greatly reduced. The limit would then depend upon the stability of the silver compound itself. We therefore conclude that a normal developer should contain such a proportion of alkali as will bring out the lights and shadows of a picture in their true relative intensity. For an under-exposed plate use more alkali; for over-exposed, less.

Thus far all is clear enough, and were it not for a very remarkable, and as yet unexplained, action of light upon sensitive silver compounds, the process of development would always be a very simple operation. This apparently erratic action of light is a reversal of the primary effect which is brought about by continued exposure. If, for example, it requires three seconds to produce a good negative, an exposure of somewhat longer duration—perhaps of ten seconds—will yield a positive picture. A still longer exposure causes a second reversal, and we get a negative, after that another positive. A practical demonstration of these effects is by no means easy, because we do not know, except from numerous trials, how long to make the successive exposures. I have seen the first reversal several times, on plates brought to me by others, but they have always been accidental and a source of great astonishment to those who made them. The same result can also be produced by a momentary exposure of a plate to diffused daylight after proper exposure in the camera.

Now as to the bearing of all this upon development. It is obvious that reversal by over-exposure involves a reduction of density in those parts of a negative which should be nearly opaque, since in the reversal these must become the thin or transparent parts. We observe this effect in its incipient stage very frequently in our negatives which have thin skies. Thin skies are the result of over-exposure of those parts of the negative. They cannot be avoided when there are deep shadows in the subject. Only when exposures are very quick do we get clouds in our pictures, because the sky and cloud light is so very strong that all gradation of light is lost on the plate. If we expose too long upon the subject itself the same reversing effect begins, and while the high lights grow thin by over-exposure (reversal), the shadows grow stronger and stronger, as the weak light acts for a longer time. Thus our difficulties multiply, for it is impossible to give always a correct exposure, and even if we could do so, there are often such strong contrasts in our subjects that before the

shadows are well exposed, the high lights tend toward reversal. The negative will therefore be flat and thin. This effect must be controlled in the development, and with certain limits this is possible. We have seen that pyro controls density, and alkali the energy of the action. Now over-exposure for a strongly alkaline developer may be under-exposure for a very weak one. Therefore, knowing that the plate is over-exposed, use a developer weak in alkali, that it may act slowly, and use an extra proportion of pyrogallol to give increased density. Under-exposure is treated in the opposite manner. In this the contrasts are too strong. The high lights are usually exposed very well. They develop black and opaque. They should therefore be brought out with weak pyrogallol. But the shadows do not come out well; therefore use stronger alkali. We observe, therefore, that the special efficacy of a developer, whether for common work or for particular purposes, depends upon both the absolute and the relative proportions of its two principal constituents. If now you ask me to give a formula for the most perfect developer for amateurs, I would say that it is not possible to choose between many in use.

There is another compound of great value in development, but since it is not an essential constituent of the developer, we will dismiss it with a few words. I refer to bromide. The action of potassium, sodium, or ammonium bromide is quite the same. The bromide restrains the action of the developer. If we use a bromide we must also use more alkali than would be necessary without it. To a great extent one may avoid the use of bromide by reducing the alkalinity of the developer. But the chemical action of bromide is too complex to permit of discussion at this time.

We now come to the third mentioned constituent, the sulphite of soda. The influence of sulphite upon the process of development may be neglected in this discussion. It is used primarily as a preservative of the solutions. An alkaline solution of pyrogallol rapidly absorbs oxygen from the air and becomes dark red. When mixed with a due proportion of sulphite this change is prevented or retarded. By the use of an excessive quantity of sulphite, developers can be made to keep for a long time. This is the secret of preparing the solutions which are sold in the shops; they contain very much sulphite. The question then arises, how much sulphite should be used? I would reply, just as little as possible. I have experimented some upon the point, and I find that a proportion of one part of crystallized sodium carbonate to $1\frac{2}{3}$ parts of sulphite (in crystals) will keep the solutions in good condition during prolonged development, and prevent yellow staining of the film.

But I never keep a pyrogallol developer mixed, nor even a solution of pyrogallol. The proportion of sulphite recommended will not preserve the color indefinitely in warm weather. My stock solution consists of sodium carbonate and sulphite dissolved in water, and when required for use I weigh out the necessary quantity of pyrogallol and add it to the solution. It dissolves instantly, and there the strength of my developer in pyro is always known. There is no deterioration and loss of pyrogallol by keeping. For amateurs this plan possesses great advantages. Not only is there economy to recommend it; but the composition of the developer is always under control.

I believe I was the first to recommend a strong solution of sodium bisulphite as a preservative for the developer. A saturated solution of sodium carbonate in water is first made. Through this a current of sulphurous acid gas is passed until no more is absorbed. The solution then prepared is preserved in small (1 or 2 ounce) glass-stoppered bottles. About 1 dram of such a solution added to 10 ounces of developer (if my memory serves me right) will preserve the color perfectly during development.

R. Hitchcock.

A NEW EMULSION FOR PRINTING OUT PAPER.

[Read before the London Camera Club.]

I REMEMBER once talking to Mr. W. B. Bolton, to whom we owe so much for our present knowledge of emulsion work, on the genesis of collodio-bromide emulsions. He told me that one of the suggestions came from Rejlander. This artist was always in trouble with his bath, or his collodion, or both, and, speaking with Mr. Bolton and some other experimentalists, he asked: "Cannot some of you clever fellows get over this eternal bother by mixing the whole lot up together?" Well, a collodion emulsion may be looked on as a mixture of the collodion and the wet plate bath. The water is the only thing that is left out, and not the whole of that.

Something of the same thing suggested itself to me some time ago in connection with printing. I had been trying various different ways of sensitizing plain paper with silver salts, trying, amongst others, some of the excellent processes of Mr. Lyonel Clark, and I got good results with many of them, if I gave the necessary amount of care and took trouble enough; but the care needed was

certainly great, and the trouble of the double process of salting and sensitizing more than I liked. Moreover, I found that I was very liable to get defects in the way of spots, streaks, and the like, even after all the care and trouble. Why not, I thought, get over at least half the trouble by mixing the ingredients up together and applying them to the paper in one operation? Every formula that I had been using contained gelatine as one of the constituents, and had the making of an emulsion in it.

There is nothing new in this, it may be said. It is nothing more nor less than the gelatino-chloride emulsion that we are already acquainted with under various names, such as "aristotype" and goodness knows what else. I think, however, that the emulsions that I am going to describe have several novel features. In the first place, they are emulsions that need no washing, and that are made by the extremely simple process of pouring one liquid into or mixing one liquid with another. The emulsions are, moreover, ready for use at once, and, being liquid at ordinary temperatures, can be applied to paper or other materials either by floating, as in the common method of sensitizing albumenized paper, or by brushing them over the material that it is wished to sensitize. Farther than this no gloss is given to the surface of the paper. I think, indeed, that, by this process, the preparation of sensitized paper—of any kind so far as surface is concerned—is reduced to the utmost possible simplicity.

I have tried a number of variations in the quantities of chemicals and have had more or less success with all. In fact, there is great elasticity in the proportions that may be used, and I believe that almost any formula for a printing out gelatino-chloride emulsion might be taken, and that good results could be got, if one or two considerations were not lost sight of. The first is that the quantity of gelatine must be kept so low that it will not cause a gloss on the paper, or cause the emulsion to set at ordinary temperatures. The second is that the formula must insure a large quantity of insoluble silver salt in suspension. The reason for this is that the coating got by an emulsion that does not gelatinize immediately after coating, is much thinner than if it does gelatinize.

To those who have not had much experience in emulsion work, it may be worthy of remark that, within very wide limits, the same quantity of an insoluble silver salt is emulsifiable in a given quantity of water, whether the quantity of gelatine used as a menstruum be great or small. Roughly speaking, the haloids, or I imagine the other insoluble, or nearly insoluble salts of silver, resulting from the decomposition of 1 ounce of silver nitrate can be emulsified in 10 ounces of water, but, if that quantity of silver be exceeded, a part will not emulsify, but will be thrown down in the granular form, in which it is useless for sensitizing any surface. The proportions vary, however, with certain conditions, such as alkalinity or acidity of the solutions.

The difference between the failure of a silver haloid to emulsify in a gelatinous solution, and the precipitation of it from that solution afterwards, must not be lost sight of. Thus, if any of the emulsions that I am now writing of be kept for a number of days at a highish temperature—such as that of pretty hot weather—it is likely that a good deal of the insoluble silver salt will be found at the bottom of the vessel holding the emulsion, but this silver salt is not in the granular state, and can be re-emulsified by heating the mixture to about 120 deg. Fahr., and shaking well, the more easily if a little more gelatine be added.

I select three formulas as follows:

FORMULA NO. 1.

A.—Nitrate of silver	400 grains
Water	4 ounces
B.—Gelatine (soft)	80 grains
Chloride of ammonium	80 grains
Citric acid	120 grains
Water	8 ounces

FORMULA NO. 2.

A.—Nitrate of silver	400 grains
Water	4 ounces
B.—Gelatine (soft)	80 grains
Chloride of ammonium	80 grains
Citric acid	120 grains
Carbonate of soda (dry)	45 grains
Water	8 ounces

FORMULA NO. 3.

A.—Nitrate of silver	400 grains
Water	4 ounces
B.—Gelatine (soft)	80 grains
Chloride of ammonium	80 grains
Citric acid	60 grains
Carbonate of soda (dry)	80 grains
Water	8 ounces

In my hands the first formula gives an emulsion suitable for preparing paper to be used for printing from dense negatives, the second from medium negatives, and the third from thin negatives.

The third formula is, I am afraid, dreadfully unorthodox. Unless I have made a mistake in my chemistry—which is highly probable—there is just about enough ammonium chloride and of sodium citrate formed by the double decomposition of the citric acid, and of part of the soda, to decompose the whole of the nitrate of silver. I don't know

whether, in this case, there will be carbonate of silver formed; but, if not, there remains a large excess of carbonate of soda. All I can say is, that the formula works all right, and that the paper that results from the use of it keeps very fairly. The paper resulting from either of the other formulas will, I have no doubt, keep as long as any ready sensitized paper. I have already kept some nearly a month, and it is still quite white.

The following is the method of emulsifying: The two solutions are heated to a temperature of 110 to 120 deg. Fahr. The temperature should not be greater than 120 deg., or there is a great chance that some of the insoluble silver salts produced will be thrown down in the granular form. A is then added slowly to B with much stirring. The emulsion is filtered through a double thickness of cambric, and is then immediately ready for use. If it is wished to keep the emulsion for any length of time, 10 per cent. of alcohol, in each ounce of which a few grains of thymol have been dissolved, should be added to the emulsion. It is to be observed, however, that, even with this addition, emulsion by formula No. 3 will not keep for very long.

The best way of coating is certainly by floating, allowing three to four minutes, but the quantity of emulsion needed is considerable. It is possible to get an even coating by brushing with cotton wool in the following way: The paper is laid on a sheet of glass, or a clean board, and is thoroughly and evenly damped with the solution by brushing over the surface several times in directions at right angles. It is put on one side for ten minutes or a quarter of an hour to get surface-dry, when the operation is repeated. By working in this way it is possible to do with a very small quantity of solution emulsion, and it is possible to use what there is to the last drop, but the quantity used will be found to be more per sheet than in the case of floating. The reason, I imagine, is that it is impossible to get an absolutely even coating by brushing, and that it is, therefore, necessary to make the coating so thick that there will be sufficient silver where it is at its thinnest. I have never been able to get an even enough coating by brushing only once.

The temperature of the operating-room should be not below about 70 deg. Fahr., or else the emulsion should be warmed.

The paper is best dried pretty quickly before a fire, or near a stove, after it has lain face upwards for about four or five minutes to get partly surface-dry. In fact, the paper is best treated, in the matter of drying, like paper that has been coated with the solutions for the "hot bath" platinotype process.

It will be found that it is possible to coat about eight sheets of "medium" sized paper (22 x 17, the orthodox photographic size), with the quantity of emulsion given above, by brushing, or ten to twelve sheets with a consumption of the like quantity by floating. It will thus be seen that the process is an economical one.

The color in the printing frames should be a rich brown with either of the first two formulas, a deep purple with the third.

The printing is very quick whichever of the formulas be used, but with No. 3 it is extraordinarily so. Indeed, paper coated with emulsion prepared by this formula is, I think, more sensitive than that by any other printing out process that I know of. It is so sensitive that it is quite necessary to take extra precautions in working it. It needs at least all the care that platinotype paper needs, although there is, of course, the difference that, in the case of the silver paper the result of the action of feeble light is seen at once; in the case of the platinotype paper it is not seen till the time of development. I consider it best to do everything in the way of preparation by gas or lamp light.

Toning may be either by gold or platinum. I prefer Clark's platinum process to any other. I add, however, a good dose of salt to the solution, and put the prints into it dry. That is, at least, when using either of the first two formulas. When using the third, the prints are washed in a weak solution of citric acid before they go to the toning-bath, to neutralize the alkalinity.

If a platinotype toning-bath that has been used for some time, and that has been repeatedly strengthened with chloro-platinite of potassium, be used, a color is got that some people dignify with the appellation "sepia tint," but I incline to call it a dirty brown.

I find that the emulsion is readily applicable to wood, and I hope to get good results when I have had some panels made of one or other of the beautiful white woods, with a fiber like silk, that are peculiar to this country.

I have got very fine colors of image by printing lightly and intensifying, as suggested some time ago by Clark, but have not, as yet, been able to overcome a tendency to staining in the whites. Perhaps Mr. Clark will help me with a hint or two in connection with this matter.

I send a few samples of prints done by the process, but I do not think they are fair examples of what it is capable of. They are all merely some of the results of my experiments, and are on What-

man's drawing-paper, which is not very suitable for photographic purposes unless it is specially sized, and I have not sized it. It is the only pure mat-surface paper at present procurable in this country. The prints on it look tolerable only from some little distance. I hope to have some more creditable results ready later on. There are some words of explanation in pencil on the back of each print.

After some remarks from Messrs. Warnerke, Elder, Cembrano, Clark, and the Chairman, the meeting proceeded to witness the demonstration of Schoppen's method of viewing lantern-slides stereoscopically given by Mr. Woodward. The plan adopted is to interpose colored glasses, green and red, one in front of one lens of a biunial lantern, the other over the second lens. In viewing, spectacles are used also having similar glasses, green for one eye, red for the other. The appearance of solidity is very marked, the chief defect being the dimness of the pictures due to the cutting-off of the brilliancy by the colored disks.

W. K. Burton.

BLUE PRINT ALBUMS.

As a gift for a friend at any time, an album of blue prints is sure to be appreciated, and I have made quite a number of them at a very slight cost. In the first place I purchased several dozen autograph albums at wholesale prices. The albums were very pretty and durably bound, and the pages were 6 x 9 inches in size.

I carefully removed every other leaf, and then on each remaining right-hand page I mounted a blue print, and on the blank page to the left I wrote a description of the picture.

When finished each album contained about twenty-five 5 x 8 pictures of street scenes, public buildings, family groups, etc., and was a souvenir which was greatly admired. The albums cost me at wholesale about fifteen cents, and as I make my own blue paper, the total cost of each album was comparatively light.

George C. Rhoderick, Jr.

The Latest Fad in photography threatens to become a craze among handsome young men in St. Louis whose faces will assume a strong and pleasing effeminacy in the garb of a nun. Harry Kaye and John Millenberger, two well-known and popular society young men, have introduced the fad, and they are in danger of being bankrupted by the demands of their lady friends who think "the boys'" pictures are "too sweet for anything."—*St. Louis Chronicle.*

Correspondence.

A CORRECTION.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sirs: The Committee of Award for Cramer prize decided: 1st, Rose; 2d, Dana; 3d, Hein.

On page 378 of the TIMES, you have put Dana 1st. Kindly make correction and oblige,

Yours truly,

P. H. Rose.

PROVIDENCE, R. I., August 1, 1891.

Notes and News.

An Early Order.—"*Put me down for a copy* when issued," writes Captain William Imlah, of Her Majesty's Service in Canada, in regard to the "American Annual of Photography" for 1892. "I would rather have it than the Pope's blessing."

Elmer E. Reynolds has received a check for $25, being a prize awarded him for the best photograph of a dog in a competition inaugurated by the Medford Fancy Goods Co. of New York. There were more than three hundred competitors, and the result is therefore highly gratifying to Mr. Reynolds.

The Sixtieth Annual Fair of the American Institute will open September 30th, in its building on Third Avenue, between 63d and 64th Streets. It will remain open until November 28th. Full particulars of interest to those intending to exhibit may be obtained by addressing Charles Wager Hull, General Superintendent, 113 West 38th Street, New York City.

J. Pitcher Spooner, the veteran photographer of Stockton, Cal., "sailed out Monday" (August 3d), as he expressed it, "with our camp, outfit and family, rod and gun, for a few weeks in the health-giving Sierras. Don't you know of some young fellow with lots of ambition and some little money," he continues, "who wants a good business here among fine fishing and shooting, in a growing town, oldest gallery, well advertised, and always getting the best prices? If so here is his chance."

Hereafter all printed matter, with the exception of books that come here in foreign mails, will be seized as dutiable.

This order from the Treasury Department will result in the seizure of all photographs, designs of all kinds, music, circulars—in fact, everything printed that are not strictly books.

The Post-Office seizures average about three thousand a month. The new regulations, it is said, will not make an increase. But now we'll have to pay duty on all foreign photographs.

"Old Timers" Through the Camera.—There is a queer little shop up town, near the big theaters, where the photographs of "old theatrical celebrities" are on sale. Charlotte Cushman, Mary Taylor, Adelina Patti,

"as she first appeared;" Mrs. G. C. Taylor, the original "Topsy;" Tom Thumb, as he was when Barnum first exhibited him; J. Wilkes Booth, Forrest, Edwin Adams, Laura Keene and a host of old timers—some reproduced from old daguerreotypes—confront the occasional collector.

A sight of them is enough to rouse the dead spirit of the past.—*New York Herald.*

A Big Photographic Telescope.—Alvan Clark & Sons are constructing at their Cambridge factory a photographic telescope for Harvard University which will probably be the largest and finest instrument of the kind ever designed.

The lens is to be like that used by photographers rather than that of an astronomical telescope, and will consist of two achromatic lenses. Its aperture will be 24 inches and its focal length 11 feet. A telescope of this form, but of one-third its size, is now in use at Harvard.

A Lady's Photograph.—A country postmaster has got himself into trouble on account of a photograph of a pretty lady. It came to his office in a misdirected letter, which he says was already opened and only waiting for him to go in raptures on account of the beautiful face and immediately thereafter to learn the fair one's address. It was in the West somewhere. Forthwith he addresses Miss Flossie, through a friend, asking for her photo and the opening of a correspondence. Miss Florence —— was her name, and she was very angry, being a proper lady, at the impudence of "hayseed." She did not understand how to explain the sending of his letter at first, but pouting her pretty lips and knitting her brows she thought it all out. Now comes the suit in the United States Court, in which Mr. Postmaster may regret his ill-considered step.

Dixon, the rope-walking photographer, is an all-around athlete, and is so much interested in his agile ability that he frequently gives little impromptu exhibitions and does not charge any admission fee. One of the New York photographers at the recent convention told of one of his informal performances in the metropolis. Dixon went to New York to see Dana, the celebrated photographer, on a matter of urgent business. On reaching Dana's place he learned that he had just gone to the dock to take the boat for Fall River, Mass. Dixon hurried down to the pier and found that the boat was just preparing to leave. He hurried aboard, found Dana, but before he could finish his business with him the gang-plank had been lifted and the boat had swung round with only the stern line still tied to the dock. Dixon ran to the stern and deliberately walked out on the line. The people on the shore shouted to him to go back, thinking him either drunk or insane. Two big policemen crowded to the edge of the wharf and threatened and swung their clubs. Finally one of them lost his balance and fell in. The excitement became intense and Dixon sat down on the rope and waited for it to subside. When the big policeman had been fished out Dixon got up and while standing on one foot told the people that if they would stand back and give him a chance he would come off the rope. The remaining policeman became furious, and every time he yelled Dixon would assume to lose his balance and fall, but always managed to catch the rope with a foot or hand, just in time to keep himself from going into the water. After he had given the crowd a good exhibition of this kind he danced ashore. Everybody but the two policemen enjoyed the performance.

The Cuprotype—Burnett's Process.—This process gives positive impressions from negative clichés.

Uranic nitrate	10 parts
Cupric nitrate	2 parts
Water	100 parts

Float for a minute strong, well-sized paper on this solution and let it dry spontaneously in the dark. Expose until the image is visible, then develop by floating on a solution of potassium ferricyanide at 5 per 100 of water—the image appears at once with a rich brown color. When developed, wash it in several changes of water until the unaltered salts are eliminated. The proof is then fixed, and, if too intense, can be reduced in water slightly acidified with hydrochloric acid. A fine black image is obtained by toning in a solution of platinic chloride at 1 per 100 of water.

The chemical actions giving rise to the formation of the metallic ferrocyanide, of which the image consists, are quite complicated. Under the luminous agency the uranic nitrate is first reduced, then the uranous oxide acts on the cupric nitrate, forming cupric oxide, which is finally reduced to the metallic state. This metal now converts the ferricyanate in the ferro compound, which, by another action, forms both cupric and uranic ferrocyanate.

The following uranium process gives black impressions:

In a saturated solution of tartarac acid dissolve freshly precipitated ferric oxide, and keep the solution—ferric tartrate—in the dark. To prepare the sensitizing solution, dissolve 20 parts of uranic nitrate and from 1 to 3 parts of tartaric acid in 100 parts of water, and add a small quantity of ferric tartrate, the proportion varying with the tint desired; an excess gives a blue-black. With this solution brush the paper over, and when dry, expose under the negative cliché, then develop with a solution of potassium ferricyanate at 4 per 100 of water. To fix, it suffices to wash in water, renewed three or four times.

As pointed out by Mr. B. J. Burnett (see introduction), many photographic processes can be devised by basing them upon the various chemical changes, of which uranous oxide, reduced by light from the uranic nitrate or sulphate, is susceptible by means of metallic or organic reagents.

In the appendix some of the most important processes, with or without silver salts as reagents, will be described. —*From Reproduction Processes, by P. C. Duchochois.*

Photographic Perspective.—Very few photographs of landscapes are correct in perspective. Mr. A. Mallock has been discussing in *Nature* the optical factors which determine this, and in the course of his article he says that any photograph taken with a lens of less than about a foot focal length must exaggerate all the distances or make objects in the picture look smaller than they should. The only remedy for this, in his opinion, is to enlarge the picture until the right distance to view it from becomes also the convenient distance. Even if this be done, however, there is still a tendency to view the picture too far

off; for few lenses, except those for portraits, embrace an angle so small as to be taken in at a single glance, and people are naturally inclined to stand far enough from a picture to see the whole of it at once. Still, a proper amount of enlargement offers the best means of making a photograph give a true idea of the scene which it represents; and this is especially true of the small pictures taken by so-called "detective" cameras, having lenses varying from four to six inches in focal length; and it is for this end, and not, in general, to enable more detail to be seen, that the enlarging process is most useful.

Romance of a Photograph.—"The picture of a pretty girl with large, loving eyes and beautiful hair. A pretty face with an air of refinement about it, and a sweet mouth that looks as if longing for kisses. Written in a delicate hand on the back of the photograph the one word 'Nellie.'

"This was what William Tucker found in his uniform," said Treasurer McVicker, of the Soudan Company, now rehearsing in Chicago, to a *Tribune* reporter.

"All of the soldiers in 'The Soudan' wear uniforms purchased from the English government. Tucker plays the part of 'Sergeant O'Connor,' and was given a coat suitable to his rank. In the pocket he found the picture.

"No one can tell where it came from or to whom it belongs. The photograph is soiled and stained as if from much handling, but the beauty of the face is not obscured. It is, in brief, hardly what one would expect to find in the possession of a private soldier.

"Tucker showed his find to a friend who thinks he can throw some light on the mystery,

"'To my mind,' he remarked, 'that is a picture of Ellen Dysart, daughter of Sir Edward Dysart, whose elopement some nine months ago caused such a commotion in England. She had been in love with a young Oxford student named Chalmers or Chaddock, I forget which, but her parents forbade the match, and just before the Soudan war the young man in a fit of despair entered the army. After his name on the books of the Seventy-eighth Regiment appears the word 'deserted,' and the girl left her home about the same time.'

"An attempt is being made to locate Sir Edward Dysart, and the picture will be sent to him for the purpose of ascertaining if it is that of his missing daughter."

If this is original, and the treasurer of McVicker's has not duplicated it, one may truly say that there is a better plot in it than in "The Soudan" itself.

Fun in a Photograph Gallery.—"Mine is a summer business," said a traveling photographer to a *Washington Star* reporter. "When the robins are collecting material for their first nests I get my car into shape for travel, after hibernating during the cold season in Washington or some other city. In winter I establish myself on a vacant lot and open a sort of permanent studio, counting upon only a very moderate custom, because people, as a rule, don't care to have their pictures taken unless the weather is warm. It may be that the sun encourages the growth of vanity. At all events, as soon as spring is sufficiently advanced I take the road in my car. This wagon of mine is called in the trade a 'car,' being built for the purpose. It is a very big and heavy affair, you see, with its upper part in the shape of a small house. Over smooth city streets two strong horses can draw it, but on country roads four are required, and six when the region to be traversed is hilly. I hire horses wherever I am for such transportation, doing my travel so far as is possible by night in order to save time.

"Forty miles in twelve hours I frequently make in transit from one small town to another. At such stations I halt for two or three weeks at a time, but camp meetings are my best fields for work. For some reason everybody at a camp meeting wants to have his or her picture taken; it is a sort of pious jollification, and photographs are part of the fun. Commonly I pay $5 as a fee for setting up shop at a camp meeting At a fair $10 or $15 is apt to be the charge for the privilege, but fairs are no longer so profitable as they used to be, because other attractions have multiplied.

"Colored people are my funniest customers. They are very apt to want to be taken white, and that is rather difficult. In the case of a man or woman who is very black, from the camera's point of view, there is apt to be a shine in the skin that produces in the photograph a white perpendicular line down the face and over the nose. To this effect there is usually strong objection. 'I don't want my picture tooken with a blaze on my face,' is an ordinary form of protest. Tintypes in negro phraseology are 'dogtypes.' 'How much you charge to take my dogtype, mister?' is a question often asked me. Sometimes they speak of them as 'hogtypes,' and ordinary photographs they call 'papertypes.' I am speaking of the country people of course."

How a Coney Island Photographer Manages to Secure Patronage.—Novelties in the photographic line have been rather dull at Coney Island this season. For several seasons past the proprietors of the little tents in which tintypes are turned out at four for 50 cents have contented themselves with standing outside their places and poking samples of their horrible work in front of the passer-by. Last week, however, there were indications that before the season was over there will be a bitter war in the ranks of the Coney Island photographic artists.

The activity started when an enterprising person put an electric light into his studio, and announced in a loud tone of voice that he could turn out a more artistic tintype by night than any of his competitors could by day. The effect was marked. The whole photographic colony recognized that some action must be taken. Before night more electric lights had been put in in other studios, but still the pioneer in this line was not to be outdone. As dusk began to creep in over the sands from the sea, he fortified his voice with a glass of fiery whisky, and took up his position outside his door. Then he began to beseech the Coney Island pleasure-loving public to come in. And this was the song of his beseeching:

"Whoop, whoop, whoop! Here's your only chance on der island ter git er decent picter of yerself an' all yer family all erlone er in er group fer er quarter. Walk in, ladies an' gents; walk in, walk in. All lighted up by lectisty as yer see. This is the original lectric studio on der island. All others is imitaters. The wires what supplies that lectric flooid, ladies and gents, was secured by me at great expense from Sing Sing. They is ther identicul wires what was used at ther execution of Wood, Smiler, Slocum,

an' der Jap, Jugiro. Walk in, ladies and gents, an' be took by the wires what has killed four men."

As yet this enterprising artist holds the field. Nothing has been found equal to his wires from Sing Sing, but his rivals are doing a heap of thinking, and when a Coney Island fakir sets himself to thinking about what he can produce that is startling, there is apt to be some result.—*N. Y. Times.*

Artistic Photography.—The attempt to treat figures artistically by photography is of very old date—Rejlander and Mrs. Cameron being the earliest workers in this field. Rejlander, feeling—though not knowing—the limitations of pure photography, introduced a method of printing in figures by the use of several negatives. The results have been useful in exploring the limits of the method, but it has been overlooked that such work is not pure photography, but a confession on the part of the experimentalist of its limitations; there is, in short, "hand-work" in it. For that reason, and because of the lack of atmosphere and false lighting, I combated the idea. Mrs. Cameron worked by grouping figures before the camera, and some of her results are good, but the majority failures. There are almost sure to be subtle evidences of self-consciousness in the models in such cases, and much will depend on their histrionic power. I first advocated and first practiced the taking of figures by quick (instantaneous) exposures, and with lenses of long foci, to get a more pleasing perspective and unconsciousness. This is the best method of working, and if the conditions of atmosphere and light are realized, pleasing results can be so produced; but (that fatal "but") the suppression or emphasis of detail, tone, etc., is under such limited control, that the best of the finished results always give the impression that something is wanting—something too much present. There is character enough in many of the best of such photographs to prove that their producers have "good taste," can discern some of the pictorial aspects of nature, but these results give absolutely no proof that the producers have any real knowledge of art; nor can they, for art is accomplishment, and the proof of art knowledge is *art accomplishment* and nothing else.

Every reader with a slight knowledge of photography will have gathered from what I have written that, in all probability, at no very distant date, the taking of a perfectly satisfactory, technical negative will be a matter of scientific certainty and accuracy—in short, a science easily learned. Such is the case, unwelcome as this truth may be to the photographer; all that will be left to his "taste" will be the "selection" of the view, for even the printing papers will be scientifically adjusted to the negatives. That knowledge which proclaims the true artist—viz., analysis, omission of certain details, emphasis of tones or detail, the adjustment of harmonies, etc.—are and will always be quite beyond his control. In fact, all his medium will prove is that he has "good taste" such as any tourist may have who does not take a photograph at all. If a photographer with "good taste"—there are a few—wishes to become an artist he must learn one of the graphic arts, and use his "tasty" photographs as hints for movement, etc.—as the raw material for his art.—*Magazine of Art for August.*

What the Sun is Made of.—In connection with the photography of the solar spectrum considerable advances have been made in the recognition of the chemical elements present in the sun. Copper, silver, and vanadium have been transferred from the list of the doubtful metals there to the certain; and very recently Rowland has found clear evidence of the presence of silicon, the apparent absence of which has been long a standing puzzle.

The evidence in favor of the presence of carbon also seems to gain strength, and the same is true in the cases of aluminum, cadmium and zinc. The fact that the lines which reveal the presence of silicon are almost entirely in the ultra-violet, invisible portion of the spectrum, warrants the expectation that photography may soon find there evidence of some of the other still missing elements, such as boron, phosphorus and sulphur.

But no new light yet appears in reference to the mysterious absence from the sun of oxygen, nitrogen and chlorine, which play so important a part in the chemistry of the earth; except, indeed, that the results obtained by Janssen last summer on the summit of Mont Blanc are conclusive that the great "B" line of oxygen, which is so conspicuous in the solar spectrum when the sun is near the horizon, is entirely of earthly origin, and not in the least solar.

The veteran astronomer, still enthusiastic and full of pluck, though unable to endure any severe physical exertion, had himself carried by a small army of guides and porters to the very summit of the mountain, and there obtained decisive observations.

As regards the "photosphere"—the luminous surface of the sun—and sun spots, there is little new to note. Janssen, at Meudon, has made real improvements in the processes of photographing the spots and the details of the solar surface, and recent observations of the displacement of the lines of the spectrum at the eastern and western edges of the sun, made by Duner, of Upsala, have confirmed the laws of the sun's swifter rotation at the equator—a law which, though first discovered more than thirty years ago, has recently been called in question.

It still remains as much a mystery as ever how the great cavities which we see as spots come to be formed in the sun's surface, why they are so limited to the two zones on each side of the sun's equator, and why they show such a regular increase and decrease every eleven years.—*Professor Young, of Princeton, in Youth's Companion.*

THE CHAUTAUQUA PHOTOGRAPHIC EXCHANGE CLUB.

MEMBERS of this club not being able to be present at the annual meeting, August 20th, will please vote on the following questions by letter addressed to the undersigned:

1. New members to be admitted only, after presenting to the Board of Officers three specimens of their work. If not of average good quality the application to be rejected.

2. The annual dues of 50 cents to be paid on application, and refunded if rejected.

3. Election of Officers.—Secretary in place of Miss Ella Switzer—Mrs. L. S. Pierce, of Riverside, Conn.; Assistant Secretary in place of Mrs. L. H. Mull—Mr. W. F. G. Geisse, of New York City.

Charles Ehrmann, President,
Chautauqua Assembly Grounds.

"**No Amateur should be without 'The Times.'** I consider it invaluable.

"*George C. Rhoderick, Jr.,*
"*Middletown, Md.*"

The Editorial Table.

From G. M. Morris, of Grover, Col., we have received two 4 x 5 pictures entirely characteristic of the country from which they come, and they are well made as to technical qualities. They are companion pictures, showing the "cow-boy" struggling with a western pony.

McMichael's Elaine Pictures are reproduced in the *Buffalo Express* of August 1st, with an interesting article accompanying on the poem. The reproductions are entirely satisfactory, and present two pictures of this noteworthy series in a manner that all who see them may judge of the excellence of the originals, which won the second prize at Buffalo.

"**The Scovill & Adams Co.** deserve the gratitude of the amateur, as it enables him to produce the most satisfactory work at the minimum of cost, which, as my brother amateurs no doubt know, is a very essential feature in photography, when the pocket cannot always run 'dead heat' with the enthusiasm."

W. H. Crocker.

"**Photographic Optics.**" A Text Book for the Professional and Amateur. By W. K. Burton. Paper, 110 pp. The Scovill & Adams Co., New York. This volume is a valuable addition to the "Scovill Photographic Series," and the important topic embodied in its title is carefully and ably discussed by Mr. Burton. Though one of the most important subjects for photographers to understand, optics is one about which they, as a rule, know least. Mr. Burton's book should, therefore, be especially welcome. He not only gives several chapters upon the general principles of optics involved in photographic work, but goes into considerable detail as to the different forms of lenses and their proper use, the swing back, enlarging, view-meters and finders, the optics of stereoscopic photography, the spectroscope and instantaneous shutters.—*Philadelphia Public Ledger.*

POSITIVELY PRETTY.

SWEET girlhood's grace the maiden wore
When for her photograph I plead,
"I have none. I am plain," she said;
"My picture's worse. I'll try no more."

And all the while her prettiness
Was painting on my inner eye
A picture wondrous fair. Then who
Should photographic art praise less?

But, pondering how that process gives
Negation first, then truth I knew
E'en sunlight with her face in view,
Could have no heart for negatives.

Eugene Bradford Ripley, in Century.

Photographer: "Look a little pleasant, please."

Sitter: "Sir, these pictures are for distribution among my friends. I'm going to commit suicide and can't think of anything pleasant."

Photographer: "You can't? Why, just try to imagine yourself one of your friends when he receives the photograph."—*Judge.*

Queries and Answers.

121 A. B. C.—If an exposure of three seconds, Waterbury B lens, stop $\frac{f}{35}$ is correct, what will it be with a 5 x 8 Gundlach rapid rectigraph stop $\frac{f}{50}$, all other conditions being the same.

121 *Answer.*—One and three-quarters of a second.

122 BROCKTON.—Can instantaneous pictures be made upon Carbutt's orthochromatic plates No. 23?

122 *Answer.*—Yes, if you use a short focus lens, and moderate speed of the shutter, the subject to be photographed being in good light.

123 P. M. N.—How many 5 x 8 negatives can be developed with 3 ounces of the Chautauqua eikonogen developer in one solution?

123 *Answer.*—Not more than three or four. The product of oxidation of eikonogen will tinge the gelatine yellow. It will do so invariably after the solution has been exposed for a long time to the action of oxygen in the air.

124 WM. F. CLEAR.—Can you recommend a really good mountant for aristo and Omega papers, one that is adhesive enough to make the print stick well, corners and edges of it?

124 *Answer.*—All the popular mountants are good enough for this particular work, provided the manipulation of mounting is correct. Prints upon these papers are hard and resistant, and as they must be mounted when dry, very frequently the paste is not evenly distributed all over the surface of the paper. When the print has been laid upon the mount, it should be rubbed down with force to make it adhere in every part of it. A good paste for emulsion paper is the S. P. C. parlor paste, and is quite easy to manipulate; but were you to prepare a mountant yourself we recommend to make a stiff starch or flour paste to which a few shreds of gelatine has been added. A few drops of carbolic acid or 1 or 2 grains of thymol to the pint of paste would insure its keeping quality.

125 A SEEKER OF KNOWLEDGE writes: A friend of mine uses tartaric acid (proportion of 10 grains to each 4 ounces of hypo solution) and thinks he obtains better results. Is it imagination, or is a beneficial result secured thereby? Has sulphite of soda any *raison d'être* in the hypo bath? Kindly answer in THE TIMES, and oblige.

125 *Answer.*—Your friend's opinion is based upon facts. Professor Alex. Lainer, who first proposed the acid fixing bath, mixed tartaric or citric acid with concentrated solution of sulphite of sodium, adding it to the bath of hyposulphite of sodium. Later on he mixed the hypo solution with acid bisulphite of soda lye, a commercial article, sold by the Scovill & Adams Co., under the name of S. P. C. Clarifier, and produced the acid fixing bath now in universal use.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

NOTE THIS!

WORLD'S COLUMBIAN EXPOSITION.

D. H. BURNHAM, Chief of Construction.
F. L. OLMSTED & Co., Landscape Architects.
A. GOTTLIEB, Engineer.
C. D. ARNOLD, Official Photographer.

1143, "THE ROOKERY,"
CHICAGO, ILL., July 26, 1891.

THE DOUGLASS & SHUEY CO., 111 State St., Chicago, Ill.

Gentlemen: The 18 x 22 revolving back front focus Flammang Camera ordered through you from the Scovill & Adams Co., of New York, in June, has been received in good order.

This camera is for use on the grounds of the World's Columbian Exposition, and is without question the finest piece of work I have ever seen in this line of goods. I have at different times carefully examined in England, France and America all the leading cameras of the best manufacturers, and have never seen anything that would compare at all favorably with the one just sent me. It shows in every detail the wonderful skill of our very best mechanics and reflects very great credit on the admirable reputation of the Scovill & Adams Co.

Very truly yours,
C. D. Arnold.

Business Notices.

FOR SALE.—New No. 5 Alvan G. Clark Lens, for 4 x 5 Plate, *f* 8 and 8 x 10 *f* 35. H. L. IDE,
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FOR SALE.—One of the oldest and best known photographic studios on Chestnut Street, Philadelphia, together with negatives, good-will and fixtures; a rare chance; will be sold on most reasonable figures. Address
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FOR SALE.—Patent right of Photographic Shutter. Address, D. Q. EXPOSURE,
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FOR SALE—At a bargain, the old established and well known gallery of Ben Bingham, Memphis, Tenn. Cabinets, $7 per dozen. Thirty thousand negatives on hand. Reason for selling, old age. A rare opportunity to purchase a first-class and paying business. For particulars address
BEN BINGHAM, or G. A. WOODSON CO.,
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FOR SALE.—Reliable Gallery, now doing a business of $200 a month. Cabinets, $3.00. The prettiest town in Ohio. Gallery is well furnished and equipped with modern instruments, gas, water, etc. Rent low, with long lease. $800 will buy it if taken at once.
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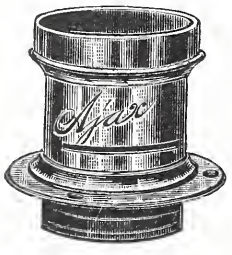
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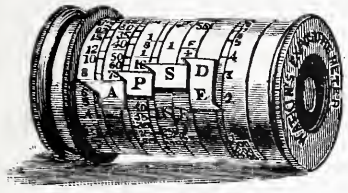
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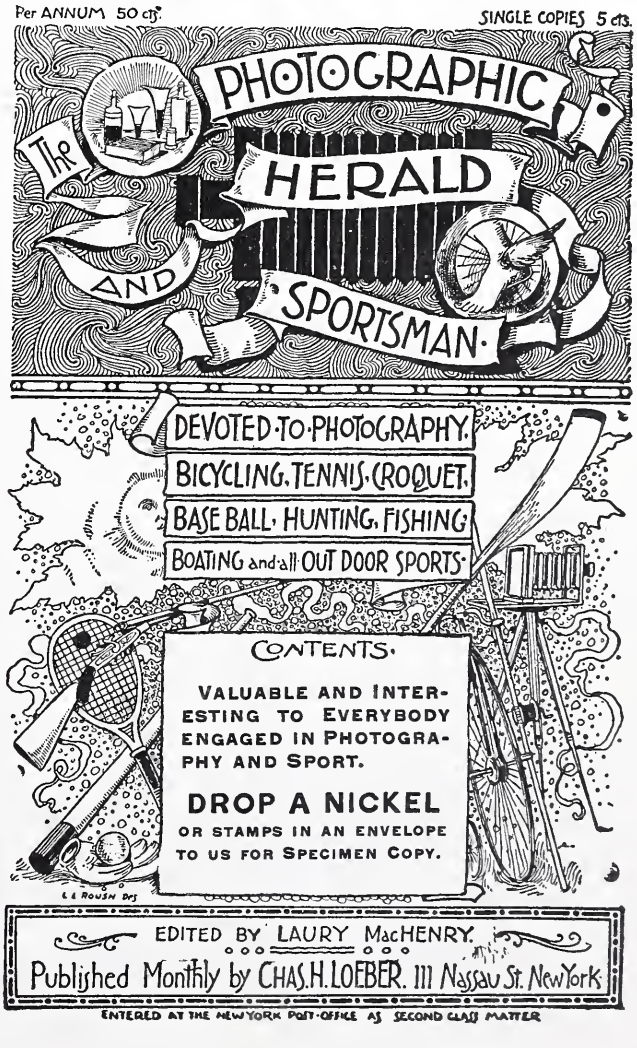
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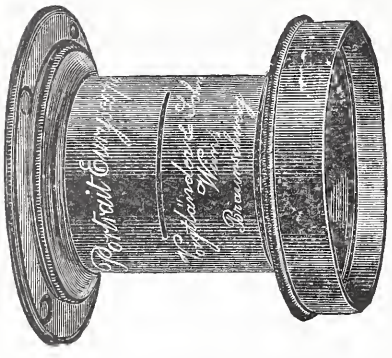
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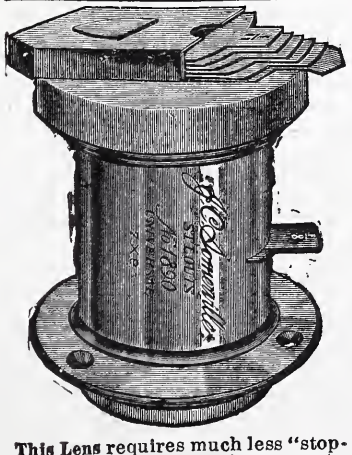
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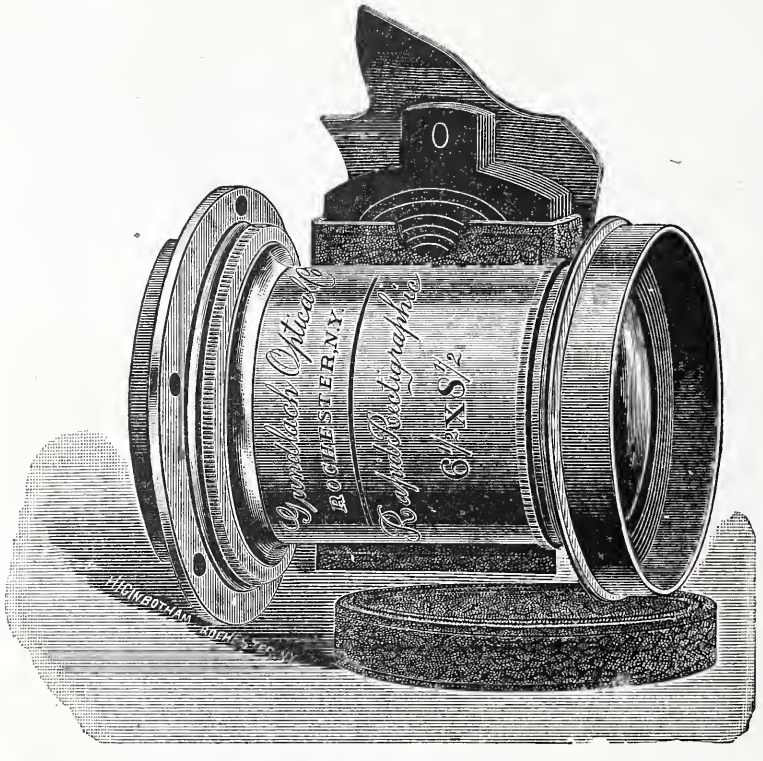
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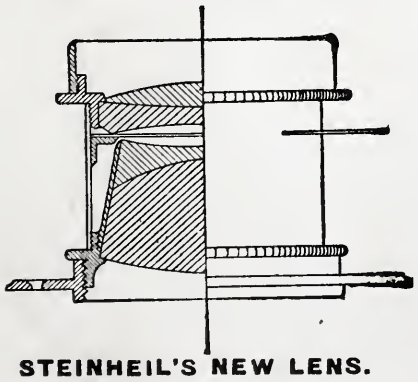
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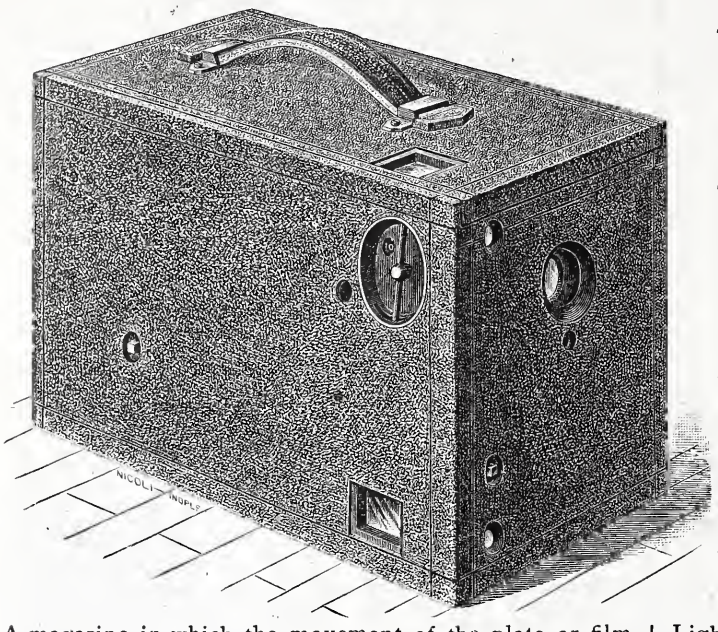
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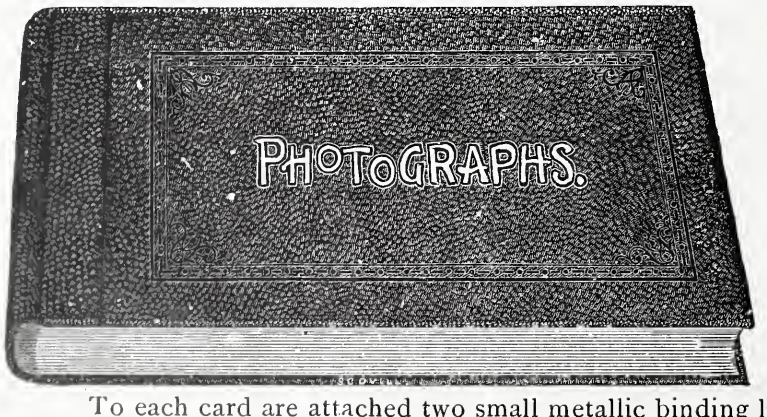
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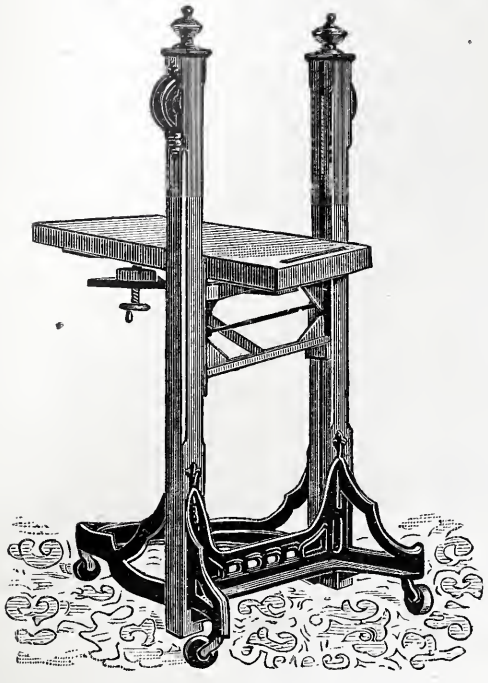
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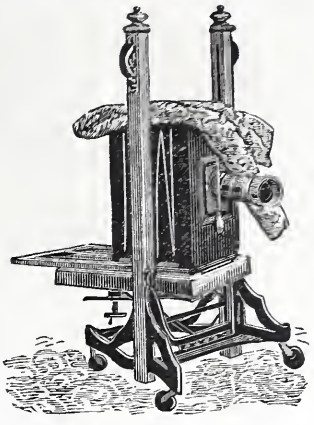
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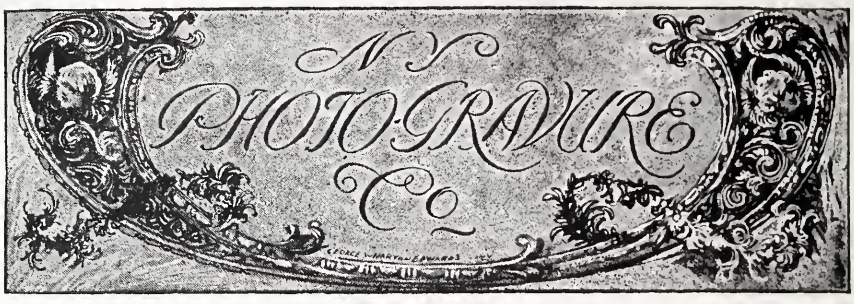
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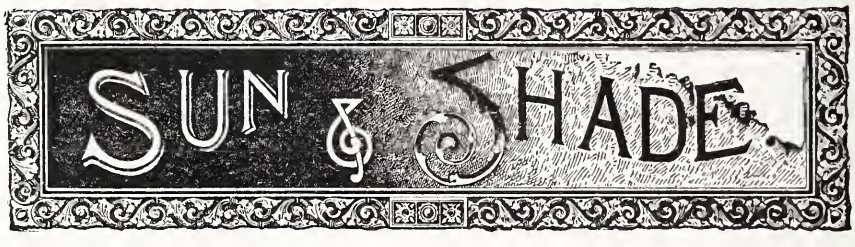
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OUR YACHT PICTURE.

WE take pleasure in presenting our readers this week with a picture by H. G. Peabody, the well known instantaneous photographer, of Boston. It is one from his famous collection of yacht pictures which have won for him so many awards and so much praise. The "Gossoon," which he here depicts, is one of the later yachts, and has already made a remarkable career. It was illustrated in the second series of Mr. Peabody's notable collection of yacht pictures, reviewed in these columns several months ago, and this picture, reproduced by the Heliotype Printing Co, of Boston, in all but size, is a specimen of the work contained in that important collection of yacht pictures. In Mr. Peabody's collection the pictures are much larger than this, and appropriate letter-press by an authority, descriptive of the various yachts, accompanies each number. For the excellence of the photography manifested in the negative, and the exquisite beauty of the reproduction, we consider this picture as one of, if not the very finest illustration yet brought out in THE PHOTOGRAPHIC TIMES, notable as it has been on two continents for its high grade illustrations.

THE ALBUMEN PROCESS.

II.*

As was stated in the last chapter, there is no difficulty to be anticipated in the preparation of the solutions for use in this process, but it will greatly simplify and facilitate future operations if the instructions about to be given are carefully studied and accurately carried out. It must be remembered, for instance, that a slight variation in the acidity of any of the solutions, while it will not necessarily lead to failure, will probably lead to some misunderstanding between my readers and myself as to the exposure, and so will entail some failures when the reader starts to actual work. As a matter of fact the amount of acidity in the various solutions has the most vital bearing on almost every operation and specially on the exposure and development.

The first step to take is to obtain some collodion of markedly porous nature. A sample of good ordinary collodion which has been iodized for a few months, say two months, will answer very well, provided it is not "rotten." The sample may be tried on a plate, and if it gives a clear smooth film without opalescence or roughness, it will probably do well, if it has been iodized for a long enough time. Sometimes collodion may be made sufficiently porous even without iodine if a small quantity of water is added to it. Be it noted that this iodine has nothing to do with the real chemistry of the process, for it is washed out at one of the earliest stages. But in any case the collodion must not be "rotten"—must not appear "grainy" on the plate, but must adhere to it well. I have tried several kinds of collodion, but find none to answer better than an ordinary sample for negative work by the wet process after it has been iodized for a couple of months.

The preparation of the albumen solution is easy enough, but requires a certain amount of attention to cautions presently to be given. It will be as well to make up at least 8 ounces at a time, for failure is not likely to be met, and the solution keeps for long and indeed seems to improve by being kept.

We require 10 ounces of albumen, and this quantity should be obtained from ten or twelve fresh eggs. I do not like absolutely fresh-laid eggs so well as those which have been "deposited" for a day or two. "Preserved" eggs do not answer well at all. The whites are to be carefully separated from the yolks—it is safer to employ the cook for this somewhat delicate operation—and then the "germs" are to be "fished out" from the white by means of a fork or some such instrument. Anyhow we should have 10 ounces of albumen, and to this we add 25 minims of glacial acetic acid

* For first paper see preceding issue.

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in ½ an ounce of distilled water. The acid is to be gently mixed into the albumen with a glass rod, but on *no account must there be any frothing* of the mixture. This is most important. The mixture is to be intimate, but the mixing is to be very gentle. The vessel containing the mixture is now to be set in a moderately warm place for about two hours, at the end of which time a half-solid semi-opaque clot will be found on the top of the liquid which itself will be very clear and limpid. The clot is to be removed with the fingers or in any other convenient way; it often comes away all in one piece. If there are now any bits of clot left in the clear liquid they may be removed with any clean instrument that comes to hand. The liquid is now strained through a cambric handkerchief, or, as in my practice, through a somewhat coarse filter-paper. This does not take long, perhaps half an hour.

The next step is to iodize the solution. There ought to be about 7 or 8 ounces of clear albumen, and we add to it 40 minims of liquid ammonia fortiss, and then 45 grains of ammonium iodide dissolved in ½ an ounce of water. Further, we may with advantage add 8 grains of ammonium bromide. Ammonium iodide is an awkward substance to keep; when a quantity of it is received a solution of it, say 50 per cent. in water, should be made.

After thorough filtering the solution is ready for use, but the smell of ammonia should be always kept up by addition of the liquor in small quantity as required. Moreover from time to time small thread-like clots may be found in the solution; these do no harm, but must of course be filtered out before the solution is used to coat plates. Bubbles in the solution are a frequent source of annoyance; to avoid these the filter should be furnished with a rubber tube long enough to reach to the bottom of the bottle into which the solution is filtered. I filter the solution every time it is used, just before the plate is coated. (The gist of these directions is after Mr. W. Ackland.)

For lantern slides none but the most perfect glass should be used. I like it to be thin, and I examine every sheet before coating it. There is no use in wasting trouble over a plate with a bubble or a scratch in it. Moreover, it is a vast saving of time and labor to prepare large plates. Accordingly I prepare plates 6½ inches square, and when they are sensitized I cut each into four of slide-size or two of stereo size. It is even easier to coat these large square plates than it would be to coat small plates like lantern size ones. The plates are cleaned with alcohol ammonia, or with whiting and water, or with ordinary "diamond polish" sold for the purpose.

The sensitizing bath is made as follows: Dissolve 1 ounce of silver nitrate in 10 ounces of distilled water, and 1 ounce of glacial acetic acid, and then add a crystal, say of a grain or two, of potassium iodide. Filter into a flat or dipping bath. It is immaterial whether we use a flat or a dipping bath for the silver solution; the dipping bath requires more solution, but the greater quantity of solution keeps better than the smaller quantity used in the flat bath. I use a kind of bath which is seldom seen nowadays, one called a "well-dish." It has at one end a turned up side which forms a sort of well in which a considerable quantity of the liquid can be held if the other end of the bath is raised; this gives us the power of sending the solution in a wave over the plate lying face upwards in the bath. But the ordinary dipping bath may be used equally well.

We now turn to the actual procedure for the operations up to and including the sensitizing of the plates.

A plate cleaned as described is coated with the collodion in the time-honored way, and it is well to hold the plate on a pneumatic or other holder rather than in the hand. The collodion is allowed to run off the plate as usual, and as soon as the run-off corner takes the impression of the papillary markings on the end of the finger, or as soon as the collodion is "tacky," the plate is placed in a dish of water, preferably running water. The yellowness due to the iodide is to be washed out, or if there is no iodide the plate is to be washed till all appearance of greasiness has left the film. In my practice while this washing is going on I collodionize another plate. The iodide or the greasiness being eliminated the plate is allowed to drip for a few moments, and then a quantity of the iodized albumen is poured on to the plate and made to run over the film, carrying the water before it over the plate into the sink. After the plate has dripped again for a second or two, a second dose of albumen is flowed over it, but this time it is allowed to run backwards and forwards evenly all over the film for at least a minute, in fact the albumen is allowed to soak well into the collodion. This may even be repeated, but after either this first or a second application the albumen may be returned to the stock bottle through a filter-paper. (The first albumen applied to the plate while the water is still on the plate must be rejected.) The plate is now racked to dry spontaneously. I do not like drying the plates by heat at this stage. They will dry if kept in an airy place free from dust, and then they are to be heated over a fire or stove till they are unbearable on the fleshy part of the back of the

hand. In this state the plates will keep, I do not know how long, probably as long as we, if they are kept in a dry, pure atmosphere.

To sensitize: Having filtered the silver solution into a very clean dish or bath, put a plate face up into the solution, so that the plate film is at once all evenly wetted by the solution, and leave it there for thirty or forty seconds, not longer. The dish may be gently rocked during this operation. Remove the plate with a silver horn or protected wood instrument, and place it directly in distilled water or boiled rain water. Wash it under the tap for a minute or less, and put it away to dry. Again I do not like to use any strong heat to dry the plate after sensitizing. Even now the plate will keep for certainly several days, probably longer, the same precautions as to dryness and purity of air being observed.

After using the silver solution put into it a little kaolin and shake up, filtering of course before using again.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 380.)

CHAPTER II.

Printing in Carbon.

Permanence of Carbon.—The element whose proper name is carbon, but which assumes such different forms as the diamond, coke, lamp-black, charcoal, etc. (each and all of which are composed of nothing but carbon), is perhaps the most *permanent*, under ordinary conditions, of all the substances with which chemistry has made us acquainted. In the form of "printer's ink," carbon assures the permanence of books, engravings, etc.; and in the ancient papyri of Egypt we have manuscripts written in carbon which are as easy to decipher now as they were thirty centuries ago. No wonder that photographers in their search for a permanent printing process turned their eyes longingly to carbon early in the history of the photographic art.

Ponton Discovers the Action of Light on Bichromate of Potash.—In 1839, Mungo Ponton, a Scotch experimenter, announced* the fact that paper coated with a solution of potassium bichromate was turned brown by exposure to light. Any one can repeat this experiment by floating writing paper upon a 10 per cent. solution of the bichromate, and then exposing the dried paper to sunlight beneath a negative or an engraving. Such a print is "fixed" by simple washing in water, which removes the unaltered and still soluble bichromate.

Becquerel Shows that a Colloid must be Present.—In repeating Ponton's experiment the great French chemist, E. Becquerel, found that the *size* in the paper played an important part in the reaction.

Talbot Discovers that a Mixture of Gelatine and Potash Bichromate is Rendered Insoluble by Exposure to Light.—Unless some colloid body (as glue, gelatine, starch, etc.) be present, the bichromate of potash is not affected by light. But Talbot found that when the bichromate was mixed with some colloid (the "size" in paper is only weak glue) the effect of exposure to light was not merely a change of color, but the colloid body *was rendered insoluble* in liquids in which it had previously been soluble. This important fact was discovered by Henry Fox Talbot is 1852, and was patented by him as part of a photo-mechanical printing process which he called "photoglyphic engraving," on October 29th in that year.

Poitevin, Sutton, and Pouncy obtain Carbon Prints.—The French chemist, A. Poitevin, in 1855 added powdered carbon to Talbot's mixture of bichromate and glue (or other colloid). Paper was coated with this mixture, dried, exposed to light beneath a negative, and then washed in warm water. The glue, etc., unaffected by light was dissolved away, leaving the insoluble glue (holding carbon, and therefore colored) to form a positive picture. In England, Thomas Sutton and John Pouncy discovered the same process, independently, in 1858; and long accounts of it were printed in the periodical edited, by Sutton, *Photographic Notes*, in 1858–59; and was in a little book, "Photography in Printing Ink," which Sutton wrote in 1863. The black color of printing ink is, of course, due to finely-divided carbon.

Half-Tones wanting in the Early Carbon Prints.—The light, acting through the negative, affected the *surface* of the carbon print beneath. In the deepest shadows of the picture (represented by clear glass in the negative) the light had time to render the carbon tissue* beneath insoluble right down to the paper backing. Under the "high-lights" (represented by a dense and opaque deposit of silver in the negative) the tissue is quite unaffected and remains soluble. But under the "half-tones" of the negative the tissue is affected to depths varying with the opacity of the deposit of silver representing the half-tones. When the tissue is removed, and its surface washed, the layer of valuable gelatine which remains *beneath* the insoluble surface

* *Edinburgh New Philosophical Journal*, Vol. XXVII, pp. 169-171.

* The thin paper coated with a mixture of gelatine, bichromate of potash, and powdered carbon, is called "carbon tissue."

parts, representing the half-tones, is dissolved away, and it usually *carries away the upper layer with it.* Thus only a hard, black-and-white carbon picture remains. This fact was clearly pointed out by the Abbé Laborde in a communication relating to an analagous process made to the French Photographic Society, in 1858.

Half-tones secured by Burnett (1858) *and by Fargier* (1860).—The Scottish experimenter, J. C. Burnett, proposed* in 1858 the remedy of placing the *back*, or uncoated side of the paper next the negative; but this was impracticable, because of the very long exposure thereby rendered necessary; and because the texture of the paper was imparted to the print.

The real remedy for the lack of half-tones in carbon printing was patented by a Frenchman named Fargier, in September, 1860. It consisted in stripping off the paper back of the tissue, and then applying the solvent, the warm water, *to the back* of the carbon film. To do this, it was necessary to strengthen the film by a coating of collodion applied to its face. Good prints in carbon now became possible; but the manipulations under Fargier's method were very difficult.

Swan, Johnson and Sawyer make Carbon Printing a Practical Success.—The patent of the English worker, J. W. Swan, dated 28th February, 1864, for the first time put a really practical, successful, and comparatively easy means of producing carbon prints before the photographic world. And yet Swan's improvements may be considered as only "details;" but it is just these details which make all the difference between failure and success. He mixed a little sugar with the gelatine to render it less brittle when dry. After exposure beneath a negative, the print was stuck, face down, on either a temporary or a permanent support; and the paper backing, with the soluble gelatine beneath it, was washed away with warm water. The picture was thereby "developed"—or rather *made visible.* But by the single transfer it was, of course, *reversed.* In some cases this reversal does not matter; but, usually, it is necessary to again transfer ("double transfer") the carbon print to a second and permanent support or backing. Or, if a reversed negative be made to begin with, by placing a prism, or a mirror, in front of the lens, then the single transfer only is necessary. Swan also introduced many other powdered colors, as red chalk, etc., in place of carbon; so that pictures in any tint could be obtained. But of course these lacked the permanence which is the great recommendation of carbon. Swan used many adhesives to make the carbon tissue adhere to its various "supports;" but in 1869 J. R. Johnson showed that it was only necessary to first soak the carbon tissue in water for a short time, in order to enable it to adhere to any water-proof support. Lastly, in 1874. J. R. Sawyer patented a "flexible support," consisting of water-proof waxed paper, which most conveniently supported the tissue while it was being developed.

In the following year—1875—two French photographers who possessed excellent powers of manipulation, exhibited the carbon process in practice in most large towns in England and on the Continent; and succeeded at last in drawing general attention to its many excellent points. It was then thought that carbon printing would displace silver; but the idea has proved fallacious. The glossy silver print has held its own; though there are not now wanting signs which seem to show that its reign may not be of much longer duration. The Autotype Co., of London, established by Swan and his partners, has done much for the advancement of carbon printing; while on the Continent a similar good work has been performed by the firm of A. Braun, of Dornach.

Practical Carbon Printing.—Just as in silver-printing, the carbon tissue can be bought either sensitized or unsensitized. In appearance it resembles black American oil-cloth. The plain or unsensitized tissue consists of paper coated with a solution of gelatine and sugar, to which refined lamp-black has been added.

The bichromate of potash—which is the sensitizing ingredient—can either be added to the above substances before coating, or the coated paper may be sensitized by floating it upon a 4 per cent. solution of the bichromate, to which a little ammonia has been added. After sensitizing, the carbon tissue will not keep good for more than ten or fourteen days.

The black tissue is exposed to sunlight beneath a negative in the usual way. The negative must have a "safe-edge" about the eighth of an inch wide, painted all round it in any opaque black varnish. This is to insure the adhesion of the margins of the tissue to the support during development. The ordinary ready-sensitized carbon tissue is a little more rapid than ordinary albumenized paper. If, therefore, it be printed along with the latter, each under a negative of average density, when the one is done the other will be done. A special instrument, called an actinometer, is generally used to determine the time of printing.

Four dishes are necessary for development. The first contains cold water and a piece of waxed

* *Photographic Journal* for 22d November, 1858.

"flexible temporary support." The exposed carbon tissue is soaked in cold water for a couple of minutes, and is then squeegeed down upon the support. It is placed between blotting-paper, and left under gentle pressure for twenty minutes. After this space of time the carbon tissue is placed in a second dish containing water, at 100 deg. F. In a minute or two the paper backing may be stripped off, and by dashing the warm water upon the print the still soluble part of the gelatine may be washed away, and the picture revealed. The print is then washed in cold water in a third dish. The fourth (and last) dish contains a saturated solution of common alum. The now developed print is soaked in this till all the yellow tint (due to the bichromate) has disappeared. It is then washed in several changes of plain water to get rid of the alum. The final operation consists in squeegeeing a piece of "permanent support" (paper coated with soluble gelatine) upon the print, which is then allowed to dry. As the carbon print dries it separates itself from the waxed surface of the "temporary support;" but adheres firmly to the "permanent support." It may then be trimmed and mounted in the ordinary way.

All the "supports" and other materials named are prepared commercially, of great excellence and moderate in price. It is far better to purchase them than to attempt to make them, except for the sake of experiment.

W. Jerome Harrison.

(*To be continued.*)

RECENT DEVELOPMENTS IN PRINTING PROCESSES.

[Read before the Convention of the United Kingdom.]

Later developments of printing processes have proceeded along certain well-marked lines, the one common aim being to render the use of albumen unnecessary, and, in view of the want of permanency that characterizes albumen prints, it will be admitted that the attainment of this result is much to be desired. For some time the development was all in the direction of the production of prints with a black or even blue-black color, and we were afflicted with one of those attacks of artistic cant from which photography suffers now and again. It was urged that, quite apart from any advantage of greater permanency, the new prints are much more artistic, simply because they are black. The preachers of this faith seem to have forgotten that etchings and mezzotints, to say nothing of photogravures, are very rarely printed in black, and that some of the most famous etchers and mezzotint engravers have printed in very warm browns and, at times, in red-browns. Now, I for one decline to admit that a black print is necessarily more artistic than a brown print simply because the one is brown and the other is black, and I welcome the still later tendency toward the production of prints with warmer colors, provided always that the prints are permanent.

Methods for the production of prints with warm colors, such as gelatino-chloride paper, alpha paper, and Lionel Clark's silver toning, are too familiar to require more than passing mention, and I propose to speak in detail of only two or three methods, which are based either on novel principles, or on principles that have not hitherto been successfully applied in practice.

Platinotype has long been regarded as the first of the black printing processes, but the present very high price of platinum has stimulated investigation in the direction of replacing the platinum by some cheaper metal that will produce prints of the same character and, as far as possible, with the same degree of permanence. So far, the only important outcome is the process that is known as kallitype, which in principle is precisely similar to the platinum process, except that the image is formed of metallic silver instead of metallic platinum.

Kallitype is based upon the old observations of Herschel and of Hunt that when ferric tartrate, citrate, or oxalate is exposed to light, and thus reduced to a ferrous salt, and the ferrous salt is treated with a solution of silver nitrate, metallic silver is precipitated in quantity dependent on the quantity of ferrous salt that has been formed on each part of the surface. Until quite recently these facts had not been utilized, but Dr. W. W. J. Nicol, working with a full knowledge of the chemical changes involved, has succeeded in producing a practicable printing method by making considerable alteration in the details of the process. Kallitype, in fact, is an excellent example of the way in which an old observation, apparently of little practical value, may become of very great utility in the hands of a man who has sufficient knowledge of chemical and other principles to develop it in the right direction and in the right manner.

The details of the process, as first published, are to be found in patent specification No. 5374, February 15th, 1890 (*The British Journal of Photography*, XXXVII, 170–171; *Photographic News*, XXXIV, 207). Paper is coated with a solution of ferric citrate, ferric tartrate, or ferric oxalate, or mixtures of all or any of them, and is dried. It is then exposed behind a negative until a faint image

is formed, just as in platinotype, and the image is developed by treating it with a solution containing 10 per cent. of sodium citrate, 1 per cent. of silver nitrate, and sufficient ammonia to just keep the silver in solution. The patentee recommends a solution containing 1 5 per cent. of silver nitrate, but I find that better results are obtained with only 1 per cent., and the best method of making up the solution is to dissolve the silver nitrate in a small quantity of water, add dilute ammonia very carefully until the precipitate formed is just, and only just, redissolved, then add the sodium citrate, previously dissolved in five or six parts of water, make up to the required volume, and filter. It is also recommended that a very small quantity of potassium dichromate should be added. The sodium citrate has the double function of dissolving the ferrous salt, and thus enabling it to reduce the silver nitrate, and of preventing precipitation of the iron by the ammonia. After development the print is immersed in a 20 per cent. solution of an alkaline tartrate or citrate, made strongly alkaline with ammonia, and afterwards in two successive baths of a dilute solution of sodium citrate containing free ammonia. The alkaline tartrate or citrate removes the iron compounds, while the ammonia removes the silver compounds, and finally the prints are washed in water.

The chief objection to this process was the use of silver compounds in the developing solution, which, of course, was very liable to stain the fingers of the operator, and quite recently a modification of the process has been made, which not only removes this objection, but also enables prints to be obtained with a very warm color. The silver salt is in the paper instead of being in the developer, and it is interesting to note that the modifications in kallitype have followed the reverse order to the modifications of platinotype ; in the latter the platinum was at first in the paper, but in the latest modification it is in the developer.

The specification of the patent of kallitype No. 2 is not yet published, but Dr. Nicol has kindly informed me that the paper is coated with a solution containing ferric oxalate, ferric nitrate, silver oxalate, silver nitrate, and oxalic and nitric acids. It must be kept as dry as possible, but does not require the same minute precautions as the old platinotype paper. The pads, etc., of the printing frame must also be dry. My own experience leads me to the conclusion that care in this matter of keeping the paper dry is of very great importance.

The paper is exposed until the detail in the densest parts of the negative is very faintly indicated, the appearance of the image being very much the same as in platinotype, and it is then developed, the composition of the developing solution varying with the color required in the finished print. For *black prints*, the exposed paper is immersed in a solution containing 10 per cent. of rochelle salt, and 10 per cent. of borax ; for *purple prints*, 10 per cent. of rochelle salt, and 2 to 5 per cent. of borax ; for *sepia prints*, 5 per cent. of rochelle salt, 1.25 per cent. of borax, and a small quantity of hydrochloric acid. In all three cases a small quantity of a dilute solution of potassium dichromate must be added. The dichromate keeps the whites clear, and increases the contrasts, and the character of the prints can be altered by varying the proportion of this salt ; too high a proportion destroys the half-tones. The examples shown demonstrate this point very clearly ; in each case two prints were made of as nearly as possible the same intensity, and one was developed with a solution containing no dichromate, the other with a solution to which the dichromate had been added.

The prints are allowed to remain in the developing solution for some time, in order that the rochelle salt may remove the iron from the paper; and the excess of silver salts is then removed by immersion for about fifteen minutes in *water*, eighty parts; *strong ammonia solution*, one part. The prints are afterwards washed in water.

My own experience indicates that, even after prolonged immersion in the developer, there is danger of iron salts remaining in the paper, with, of course, loss of purity in the whites, and I recommend that, after removal from the developer, the prints should be immersed in a 10 per cent. solution of rochelle salt before being put into the amnimoa. Ater the rochelle salt has been used frequently for this purpose, it may be utilized for making up fresh developing solution.

The black prints have a good color, with a very slight bluish tinge; the whites are clear, and the gradations good.

The sepia prints are not so satisfactory; the color is often too red, and is sometimes not uniform throughout the print. It seems, in fact, that it is more important in this case that the paper should have been kept thoroughly dry. Prints should be somewhat deeper than for the other developers, and the developer, if used frequently, must be kept acid by addition of a few drops of hydrochloric acid.

The permanence of the kallitype images is of considerable interest. The black images by both the first and second method are not altered by exposure for forty-eight hours to the products of the combustion of sulphur in air, nor by immersion in a solution of sulphurous acid for the same length

of time. A solution of sulphureted hydrogen, if dilute, changes the color to bluish-black, but produces no other alteration; if the solution is strong, the bluish-black image undergoes a further change, and becomes brown. A dilute solution of ammonium sulphide changes the color to brown, with no loss of detail and not much loss of intensity; the brown color thus produced is very suitable to certain subjects.

The sepia paper, likewise, seems unaffected by the products of the combustion of sulphur; sulphureted hydrogen or ammonium sulphide first changes the sepia image to black, but it afterwards gradually becomes brown.

No prolonged experiments on the behavior of mounted prints have as yet been possible, but there is no reason to doubt that under ordinary conditions kallitype prints are permanent. It is, of course, not to be expected that kallitype can as yet equal platinotype, but it is by no means improbable that in time the difference will be chiefly a possible difference in permanency. The process is already capable of giving very good results, and it is considerably cheaper than platinotype.

The other processes that I shall describe belong to an entirely different class; they are the first practicable photographic processes based on the use of coal-tar colors. Both processes depend on the formation of azo-coloring matters from diazo compounds, and they may be spoken of as *diazotype*, but they differ in the nature of the change that the light produces and in the condition under which the coloring matter is formed.

Diazo compounds are a class of compounds characterized by their power of uniting with carbolic acid or any other phenol, any naphthol, or any amine to form an azo-coloring matter, the tint of which depends on the nature of the diazo compound and also on the composition of the particular phenol, naphthol, or amine. Yellow, orange, brown, purple, scarlet, and blue may be cited as examples of the variety of color that can be obtained in this way.

Feer-type is the first of these processes, and is so called from the inventor, Dr. Adolph Feer (German patent 53455, December 5, 1889). It is based on the fact that diazo compounds in contact with acid sulphites form diazo-sulphonic compounds, and these form no coloring matter. If, therefore, a diazo-sulphonic compound is mixed with an equivalent quantity of a phenol or an amine, no coloring matter is formed. If, however, the mixture is exposed to light, the diazo-sulphonic compound is decomposed, the diazo compound is set free, and, since a phenol or amine is already present, a coloring matter is formed as fast as the diazo compound is liberated.

The process is applicable both to paper and to textile fabrics The paper or fabric is coated with a solution of a diazo-sulphonic compound of high molecular weight, mixed with an equivalent quantity of a phenol, or a naphthol, and an alkali, or with an equivalent quantity of an amine and an acid. The patent specification recommends sodium ditolyltetrazo-sulphonate, but Feer has since recommended sodium diazopseudocumidene-sulphonate, which can be obtained from Dr. Schuchardt, of Görlitz. My own experiments, which are as yet but few in number, were made with this compound and β naphthol. An exposure of ten seconds to comparatively weak sunlight produces a very decided quantity of coloring matter, and an exposure of a very few minutes gives a deep-colored print. The rate of formation of the coloring matter decreases as the exposure continues, because the coloring matter formed in the superficial layer acts as a screen to the unaltered material behind. The light from burning magnesium will also produce a print, and prolonged exposure to gaslight will produce an easily recognizable amount of coloring matter. Some "nature prints" from fern-leaves are exhibited; they show a very considerable amount of detail as well as the outline.

The Primuline Process is the second process of this class, and is the invention of Messrs. Green, Cross & Bevan (English patent 7453, May 13, 1890). Primuline was first made by Mr. Green, and is a yellow coloring matter that contains sulphur. It has the peculiar property of dyeing cotton, linen, paper, or any other material consisting of cellulose, without the use of a mordant. The exact constitution of primuline is not yet known, but it contains an amido group, and, therefore, will yield a diazo compound which in its turn will form coloring matters. Diazo-primuline, in the pure, solid state, is practically unaffected by even prolonged exposure to light, but when in contact with cotton, linen, or cellulose, it is rapidly decomposed by light, with complete destruction of the diazo compound and consequent loss of the power to form coloring matters.

The primuline process is applicable to fabrics as well as to paper, and gives better results with the former. Herein, in fact, lies its special merit. Fine calico, linen, etc., free from grease, is immersed for a short time in a boiling solution of primuline (about 3 parts in 1,000) containing a small quantity of common salt, and is then washed with water. If necessary, it may at this stage be

dried, and will keep for any length of time. In order to sensitize the material the primuline is converted into diazo-primuline by immersion for a short time in a dilute solution of sodium or potassium nitrite (1 part in 400), acidified with hydrochloric, sulphuric, oxalic, or some other acid. It is then washed and dried in the dark without the aid of heat. If made too dry, the material becomes less sensitive.

The sensitive material is exposed in an ordinary printing frame, a very short time being required in bright sunlight, but a much longer time in a dull light. Since the correct time of exposure cannot be judged by mere inspection, a strip of the same material is exposed outside the printing frame, and is touched from time to time with a drop of the developing solution. When the latter ceases to produce any color, the diazo-primuline on the test strip is completely decomposed, and it may be taken that decomposition in the high lights of the transparency is also complete. The print is then ready for development, which is effected by immersing the print in one of the following solutions: For *yellow*, phenol; for *orange*, resorcinol; for *red*, β naphthol; for *maroon*, naphthol-disulphonic acid. One part of the substance is dissolved in 400 parts of water, made alkaline with caustic potash or caustic soda. Other developers are: for *brown*, meta-phenylenediamine; for *purple*, alpha-naphthylamine; for *deep-blue*, eikonogen. The eikonogen is dissolved simply in water; the two amines are dissolved in water acidified with hydrochloric acid. Different developers—stiffened, if necessary, with starch—may be applied with a brush to different parts of the same prints. The developed prints are washed with water, and, in the case of the blue and purple developers, the last wash water should be *slightly* acidified with tartaric acid. In the other cases the prints are improved by being washed with soap and water. In all cases the appearance of the print is improved if, after removal from the printing frame, the back of the print is exposed to light for a short time in order to secure complete decomposition of the diazo-primuline in the high lights. The ground of the prints always remains pale yellow, and at present no method has been discovered by which a white ground can be obtained.

In feer-type the quantity of coloring matter formed is proportional to the quantity of light action, and hence we obtain a positive from a negative, and *vice versâ*. In the primuline process the quantity of coloring matter is *inversely* proportional to the amount of light action, and hence we get a positive from a positive, and a negative from a negative.

The prints, being formed of azo-coloring matters, will gradually fade if exposed to sunlight, but are permanent enough if exposed only to the diffused light of ordinary rooms.

Neither of the diazotype processes is at all likely to displace any of the ordinary printing processes but they may be specially useful for the copying of engineers' plans, etc., upon cloth, and, since a variety of colors can be obtained, the processes are likely to be very useful for decorative purposes. The primuline process is very simple and cleanly, and can be readily used by ladies, who, with the help of dried ferns and other leaves, can produce a great variety of designs on linen, etc., and these can be mounted in any desired manner. In this connection it may be useful to point out that the disagreeable smell of the purple developer (alpha-naphthylamine), which clings very tenaciously to the fingers, can be removed by dipping the fingers into the solution of nitrous acid used for sensitizing the primuline.

C. H. Bothamley.

THE CULT OF INDISTINCTNESS.

[Read before the Convention of the United Kingdom.]

EVERY now and then, in some field or other of art, a disturbance occurs which threatens to be in the nature of a revolution. Some few active minds take up an idea which has been brought into prominence by the peculiarities of some one or more professors of the particular art, and carry on a vigorous crusade on behalf of a view which, to judge from their professions and actions, they think destined to create a revolution. The leading ideas may not be, and, indeed, generally are not, new, but are in the nature of a revival, conscious or unconscious, of something which has before been practiced to a certain extent, but has been allowed to fall into neglect and so much of oblivion as to give a character of novelty when put forward with energy and some freshness of expression. Within living memory such attempts at upheaval have occurred in the fields of poetry, of music, and at least twice in that of pictorial art, without leaving much permanent effect on the general appreciation of what are to be considered as the highest and most valuable qualities in the respective fields of labor involved.

It could scarcely be expected that photography should be exempt from disturbances of a character similar to those referred to as affecting other arts, and, in fact, there has recently been a revival in a very aggressive manner of a claim for superiority

in results, differing mainly from those which have been accepted as representing the best work in photography in the indistinctness characterizing them in whole or in part. The renewal in question is, doubtless, very largely due to the energetic advocacy of Dr. Emerson, and although he has renounced what he had written in that connection, some of those who adopted his suggestions and supported his arguments still maintain the superiority of that photographic work in which indistinctness is the most promising characteristic, and do so with an aggressiveness and an assumption of artistic excellence that seems likely to induce a good deal of acquiescence, especially among the newer and less experienced amateurs, who are only too likely to be persuaded that the dimness and indistinctness which are so easy for them to produce are something more artistic than the class of work with which they would find it harder to compete. These loudly-asserted claims of artistic superiority seem, too, to have induced a certain amount of acquiescence among a larger class, photographers often submitting too readily to what claims to be artistically authoritative. It is not easy otherwise to account for medals being awarded to photographs which, independent of the question of indistinctness, one might have expected to be debarred by heavy artifical printing down of skies—a printing down which, in some cases, involves the confusion of such objects as wo uld in nature, in painting, and in simple true photographs, stand out in decided relief against the aerial background.

The claim to artistic superiority for "soft" over "sharp" photographs depends, as has been previously pointed out, very much upon the different meaning attached to the word "sharp" by painters and by photographers, the latter understanding the word to mean minutely defined, and the former harsh in outline. Softness and thorough sharpness in the photographic sense of fine definition, are quite compatible in a photograph in which, by extreme care in exposure and development, and, when necessary, by the use of orthochromatic methods, the gradations are properly rendered. It is, no doubt, easier to obtain a fictitious kind of softness by losing definition, but to claim a monopoly of artistic merit for this kind of softness seems to be about as reasonable as it would be to do so for those productions of the brush in which the badger softener had been freely employed by the painter.

As an example of the assumption of the monopoly of artistic merit by the professors of the indistinct school, and of the unworthiness of those who do not share in their views, may be mentioned the remarks of Mr. Maskell at the Camera Club Conference on the paper by Mr. Pennell. The last-named writer has condemned photography as false in representation, and as a hinderance rather than as a help to art; and Mr. Maskell replied to the effect that he could assent to these charges if applied to photography as practiced until quite recently, but that some of the productions of the last two or three years—naming those workers who belong to the same school of indistinctness that he does—were of so different and superior a character that Mr. Pennell's criticisms were no longer justified. This assumption was more irritating than Mr. Pennell's easily refutable statements as to the inaccuracy of photographic perspective and other condemnations of our art. So then, works such as those of England, Gale, Wilson, Robinson, Frith, Valentine, Bedford, Abney, Pringle, and hosts of others, English and foreign, are all to be rejected as fit for the denunciations heaped upon photography by Mr. Pennell, and only those of the circle to which Mr. Maskell belongs are useful to the draughtsman or worthy of anything but condemnation!

Then, again, Mr. Davison, at his lecture on "Impressionism in Photography" at the Society of Arts, spoke of those who had smirched photography by taking photographs sharp all over, and printing them on albumenized paper. That is to say, that those who have been recognized as the ablest workers are set down as having "smirched" photography by producing works in which the details and gradation of tone visible in the natural scene are, as far as practicable, reproduced in the picture.

With regard to the true rendering of gradation or tone, it may be remembered that Dr. Emerson particularly insisted upon preserving it as far as possible with the photographic means available. In this point he was at one with Abney and others, and I understand it to be the one point in his teaching which he did not renounce. By such devices as sunning the whole of the print—tending to indistinctness of another kind than that resulting from want of focus—and insisting upon mat surface, and even upon rough-surface paper for printing upon, the range of gradation, already insufficient in photography, is weakened, and truthfulness of representation to some extent sacrificed. An out-of-focus photograph, printed on rough paper, may suggest an unfinished sketch by a painter, but is not on that account really entitled to be called artistic, however loudly such a quality may be claimed for it.

Concerning such an essentially artificial (not the same thing as artistic) practice as sunning a pho-

tograph all over, Mr. Davison says (*Photography*, April 3, 1891): "It struck us at the last Pall Mall Exhibition that nine-tenths of the photographs collected there would have been less objectionable for a judicious sunning down, even if applied all over the prints." To set down nine-tenths of the works of one's co-exhibitors as "objectionable," from one cause alone, seems to me to be characteristic of that assumption of superiority by the professors of the cult of indistinctness, to protest against which is the object of the present paper. The remedy or palliative treatment prescribed will probably strike most people, besides the producers of this condemned nine-tenths of the work, as being itself objectionable.

Pretensions to artistic superiority are not necessarily justified in proportion to the dogmatic way in which they may be put forward. Gloom, mist, and indistinctness do not exhaust the beauties of nature, and are not its only phases worthy of representation, although in photography they may be the easiest to suggest, whether existing in the original subject or not.

W. E. Debenham.

Notes and News.

Mr. Charles Simpson is taking an extensive trip abroad, and has reserved for winter a photographing trip up the Nile.

Blackmail.—The amateur photographer is said to be doing a blackmailing business among certain Philadelphia society belles at the shore.

Mrs. Louis Harrison is giving some attention to amateur photography during her husband's absence in London and Paris. The enterprising Louis will have something to say to the London managers about his new opera, "The Isle of Champagne."—*Dramatic News.*

The Boston Camera Club has issued its constitution and by-laws, with full information concerning the club for 1891. A plan of the club rooms shows a most improved arrangement of things, and the list of active members includes 119 names. There are six associate members and two honorary members, thus making 127 in all.

Portraits Fired on China.—Photographer McMichael has introduced a new art into Buffalo which is sure to become very popular. Hitherto it has been impossible to get portraits on china without painting, but by this new method they are photographed on the china and then fired in a similar manner as china decorations. The portraits look like the finest photographs, and unless broken will last forever. As the pictures can be adapted to any size they may be put on cups, saucers, vases, panels, medallions or anything else desirable.—*Buffalo Times.*

The California Camera Club suggests an annual prize competition, open to members of the club, with special premiums for progress in the different branches of photography. In connection with this it is hoped that an American Prize Print Exchange might be established for the exchange between the various camera clubs of the United States and Canada of the best productions of each organization.

The Postal Investigation.—Postmaster Van Cott and General City Superintendent Morgan of New York conducted an investigation in regard to the mysterious disappearance of a package of photographs from Branch Postal Station O, on West 13th Street, and its subsequent discovery by an employé of a junkman, who found it in refuse purchased from the station. No definite trace of the matter has yet been found.—*Brooklyn Eagle.*

Amateurs Abroad.—Mr. Ernest Warrin, of the Society of Amateur Photographers of New York, has returned from a trip in France and England. He used a small hand camera during his visit abroad, and brings home some excellent pictures. An unusual number of the members of the society are traveling this summer with their cameras. Miss Slade is in Europe, using a "Waterbury" camera, and others are taking the Continental tour. Their pictures will largely aid in making the lantern-side exhibitions of the society interesting next winter.

Charles Wager Hull, Superintendent of the American Institute Fair, is undoubtedly the oldest amateur photographer in the United States. He has been in the ranks since daguerreotypes were the only sun pictures made, and has carried a camera over much of the country between the Atlantic coast and the Rocky Mountains. He is a member of several amateur societies and is really the father of them all, as he organized the Photographic Section of the American Institute before the Civil War.—*New York World.*

Will Photograph the Snake Dance.—WINSLOW, Ari., August 6.—The famous Moqui Indian snake dance, which is held every two years, commenced yesterday on the reservation, sixty miles from here, and will continue sixteen days. It is reported that the Government is taking steps to discontinue the dance, and that this will be the last one held. Major Donaldson, who took the Moqui census, has gone to the dance with a photographic outfit, and the Government has also sent a corps of photographers.—*N. Y. Sun.*

An Exhibition of Photographs, the work of the members of the Society of Amateur Photographers of New York, will be held at the American Institute Fair, commencing September 30th, and continuing for eight weeks. The exhibits will be divided into five classes: Portraits, Instantaneous, Marines, Landscapes, Enlargements. Fifteen bronze medals will be awarded for—1st, Superiority; 2d, Excellence; 3d, Merit. Entry blanks and full particulars will be forwarded on application to the Exhibition Committee. Committee: T. J. Burton, Frank C. Elgar, Fred. Vilmar.

The New Executive Committee of the American Lantern Slide Interchange has just issued a call for slides to the respective clubs in the interchange for the season of 1891–92. It requires that greater attention be given to the descriptive details of the pictures. The committee has the promise of five sets of foreign slides, three from England, one from Austria, and one from Australia, which, with the large collection of domestic slides, will supply fresh material for a number of exhibitons. There is some prospect that the photographic survey of New York will also make some progress during the fall months.

Why Do Not More Women Take to Photography, not as a business, for it is hard, uphill work, but as an amusement, a substitute for the never-ending, and generally useless, so-called, fancy work, in which they waste so much time and material? If some of those feminine associations that profess so great an anxiety for the welfare of their sex would collect, and publish in pamphlet form, the photographic writings of Miss Catharine Weed Barnes, and distribute them through the length and breadth of the land, they would do more real good than could be accomplished in a century by chattering about "women's rights," the "women's franchise," "the eqality of the sexes," and many other feminine fads that tickle the ears of the silly and grieve the hearts of the sensible. —*Watchman, in The Beacon.*

The Harvard Dry Plate Company's Works were destroyed by fire, Tuesday, August 18th, the loss being about $8,500, part of wh ich is covered by insurance. All photographers who have been using the excellent Harvard Dry Plate will sincerely regret this catastrophe, and will hope that the company may soon be able to repair the loss and manufacture their plates once more.

Here is a Suggestion for the amateur photographers who are often in a quandary, especially when taking open-air views, as to whether they want to take this or that location, or whether the view will be all it seems to be. Glass plates being heavy to carry, and therefore not to be wasted, let the photographer take a so-called tintype first. Steel plates rolled so thin that they are no heavier than good writing paper can be purchased in Wales—perhaps in America, now that the tin mills are running—at a cost so small that an ordinary 4 x 5 plate can be japanned and sensitized and put into a camera at a cost of less than a cent. Three hundred plates would occupy no more space in a valise than a common 500-page book.—*N. Y. Truth.*

A Bright Photographer has invented a screen behind whose friendly protection ladies may be photographed with dummy feet of exquisite proportions. The inventor expects to do a large business in Chicago.

The Photo-chromograph.—An invention, called the photo-chromograph, has been made in the observatory of Georgetown College, D. C., by means of which the transit of a star is made to record by its own light the time of its movement, making error impossible. The invention will prove of great value in astronomical calculations.—*San Francisco Call.*

"The Scovill Photographic Series now seems to include almost everything in connection with the art. Please accept my congratulations on the success of the series," writes *C. D. Cheney, D.D.S., of Hoboken, N. J.*

A WOMAN'S VIEW OF IT.

Just as likely as not you know many a woman who might tell you the same story as that which has been told to me by the long-suffering wife of an amateur photographer whose work I have always greatly admired and whose devotion to his art remains as firm as ever, notwithstanding that it seems in some respects to be tending toward a divorce court I do not know why the troubled woman should unburden her soul to me in the way that she has done concerning the one great sorrow of her life, unless it be that in a thoughtless moment I expressed the sentiment that it must be nice to have a husband given to such innocent and commendable amusements.

The family secret, whose disclosure I must attribute to this thoughtless remark, has troubled me a great deal ever since it was confided to my unwilling ears, and although I sympathize with anybody in trouble, real or imaginary, I cannot refrain from giving this secret out with proper limitations in the matter of identification.

I wish I could bring myself thoroughly enough in accord with this woman's view of the case to openly espouse her cause, but as I have always considered the camera habit one of the least objectionable to which men as a rule are an easy prey, I really do not feel justified in doing more at this time than to present her view of the case in her own words, thus making her rather than any one else responsible for any unpalatable sentiments which it may embody.

"John has been photographing, or getting ready to photograph, or just going to photograph, for about three years now," is the way she tells her sad story. "When I married him for better or worse, richer or poorer, I did not know anything about photography. Up to the time he got the craze, I had always considered him reasonably sane, but since that time I have often thought that I should be obliged to change my mind permanently on this question.

"At the time he began to neglect his family for his art his home was one of the neatest in the neighborhood, if I do say it. You ought to go through it now. He has ruined every carpet with those abominable chemicals that he uses. I don't make any pretension of knowing their names, but I do know to my sorrow their effect on carpets and furniture. He uses the bath-room for what he calls his dark room, and it's a fright all the time the best I can do.

"I have read in one of the books that he makes his bible that a man named Daguerre invented photography, but I am of the opinion that another sulphurous gentleman whose name begins with the same initial, invented the amateur end of it.

"John used to be real good tempered until he went at photography, but he has times now when he is just awful. I opened that bath room door once when he was working there. It was all dark inside except a frightful red lamp that made him look as though he was right in the middle of an epileptic fit.

"Of course I couldn't open the door without letting in a little light; nobody could, and just because I did that he

said I had spoiled six dollars worth of plates. Mind you, I didn't touch a single thing, and only just looked in for a minute to ask him if he wouldn't take care of the baby for an hour. The language that he has learned to use on such occasions is perfectly shocking.

"And the poor baby, too; I put his foot in the tub in the dark room one day and came near silver plating him, or something like that. His feet are all black now, and John says it will have to wear off.

"When it comes to the cost of the thing, I won't pretend to say how much money he spends on it. One thing I know is that pyrogallic acid, whatever that is, costs fifty cents an ounce. Another thing he uses is chloride of gold; another fifty cents for fifteen grains of that stuff. That's twenty dollars an ounce and over three hundred dollars a pound. For a rough guess I should say that he used a pound of this nasty stuff every week.

"I don't wonder that he says my last year's coat looks better on me than anything I could get this year and that the baby feels more comfortable in old ragged tires.

"The cat drank some water out of a saucer that had potassium in it and just curled right up and died, and for over a year I have been afraid to use a glass or a dish in the house for fear that it will serve me or the baby in the same way. I am afraid to sweep for fear that I will spoil six dollars worth more of something that he has got tacked up to dry, and I dare not dust a corner in the house for fear that I shall joggle something that is printing, because I can't tell when the things are printing and when they are not.

"I think the man that invented the kind of camera that all one has to do is press the button and somebody else will do the rest is entitled to some credit, but all the rest are, in my opinion, a bad lot. I have tried to induce John to get one of them, but he says they are no good, that all the fun comes in doing your own developing."

The depths of the iniquity into which John has fallen were more than ever clearly apparent when at the end of his wife's half bantering arraignment of him and his folly, he set down the baby with the indelible black feet and asked me in something of the manner of an opium eater if I wouldn't like to see some new negatives that he had just made on Beaver Brook.—*Lowell Citizen.*

Among the Notable Features announced for publication in the September number of the *North American Review* are: "Anecdotes of English Clergymen," by the Hon. C. K. Tuckerman, late Minister to Greece; "A Plea for Railway Consolidation," by C. P. Huntington, President of the Central Pacific Railway; a reply to Goldwin Smith's article on "New Light on the Jewish Question," by an author who writes under the name of Isaac Besht Bendavid; "The Story of Cushing and the Albemarle," by the late Admiral Porter; "Dogs and Their Affections," by Ouida; "The Ideal Sunday," by the Rev. C. H. Eaton; "Co-operative Womanhood in the State," by Mrs. Mary A. Livermore; and "Hayti and the United States," by the Hon. Frederick Douglass, late Minister to Hayti. These are but a part of the contents announced, and among other features will be a discussion of the question, "Is Drunkenness Curable?" to which Dr. Wm. A. Hammond, Dr. E. N. Carpenter, Dr. T. D. Crothers and Dr. Cyrus Edson will contribute.

WHEN I have tramped the weary way
And snapped the shutter too,
'Tis then I read the words you say,
And know that they are true.

I, sweating, snap and rush and tear,
Whilst you content are blest;
I toil and moil, 'tis you, I swear,
Not me, who does *the rest.*

—*Outing.*

Queries and Answers.

126 FRANKLIN COPYING CO. writes: Will you kindly tell me how I can coat celluloid with a gelatine emulsion? I have tried it several times, but the celluloid seems to be greasy and the emulsion won't run over it.

126 *Answer.*—Try a substratum of diluted albumen; or rub the celluloid plate with a weak solution of sodium water glass till dry.

127 F. H. R.—This correspondent is anxious to embrace photography regardless of cost, but wants to do unexceptionably fine work. He wants to know, 1: where the most perfect apparatus may be purchased; and 2, where plates may be had capable to reproduce natural colors. Photography in natural colors he has been told is a recent invention, and being tired of those monotonous black and white things, he wants nothing else but to make photographs in lines and tones as brilliant as nature produces them.

127 *Answer.*—The most perfect apparatus is made by Scovill & Adams Co. That is an established fact. The second question is rather difficult to answer within the short space of this column. Sensational newspapers have expanded certain facts relating to the solving of the above-mentioned problem injudiciously, misleading tyros in photography very considerably and to the detriment of photographic science. Recent experiments made in this direction, highly interesting as they are, have not brought us a whit nearer to practical accomplishment than we have been for the last thirty years. But after all our correspondent may mistake the situation entirely, and means only the reproduction of color values or brightness, in which case he can not do better than obtain from the above-mentioned firm, with an excellent apparatus, a few dozens of Carbutt's orthochromatic Eclipse plates.

128 L. W. F. writes: "Is there a process for photographing the pages of records and reproducing them for abstract purposes? If photography is employed as an adjunct to abstracting I shall be obliged for such information as will acquaint me with it."

128 *Answer.*—Documents of all kinds and description are very frequently copied by photographic means. Use a lens of the rectilinear type, closely diaphragmed a slow plate like the Carbutt B, or that for process work by the same maker; expose for the white portions of the document only, and develop with hydrochinon. If the paper is old and of a yellow hue, an orthochromatic plate without ray filter should be employed, but if the letters are typewritten in blue or purple color, the ray filter cannot be dispensed with. Positive sharpness, and as much as possible absolute opacity of the ground and transparency of the written or printed characters, are the desirable conditions for a negative of documents.

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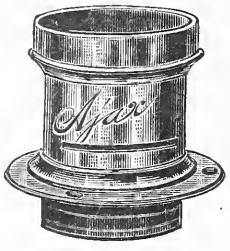
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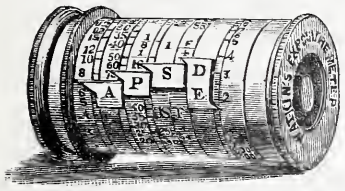
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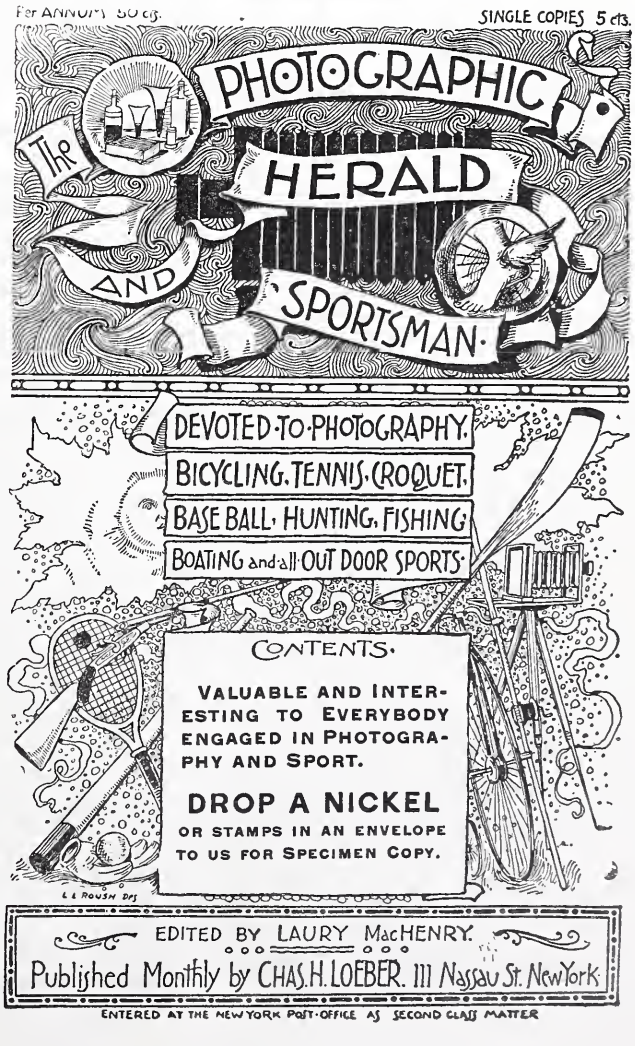
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Instruction daily, from 8 to 12 A.M. and from 1 to 4 P.M.

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A very large number of students being expected the coming season, all those intending to join the class are requested to report to the headquarters of the School at once.

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Possess the Highest Degree of Rapidity and Finest Chemical Effect.



Are Clean, Clear, and Brilliant, Uniform and Reliable, and Easily Developed and Fixed.

In fact they are better and more uniform than any other plate that was ever made on the globe.

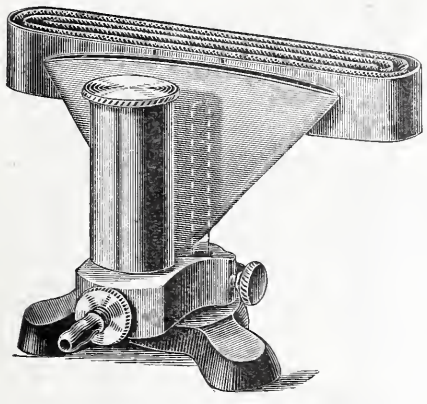
The leading photographers all over the United States, who are all using our plates, say they are INCOMPARABLE.

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(Nearly 100 square inches surface.)

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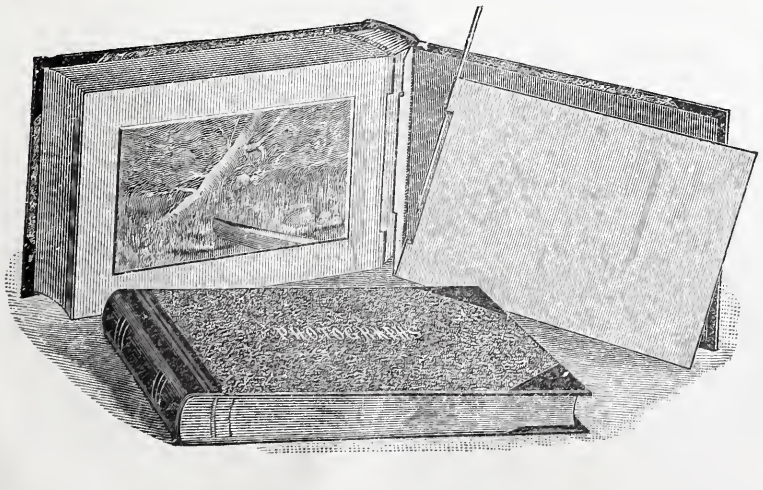
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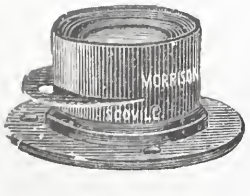
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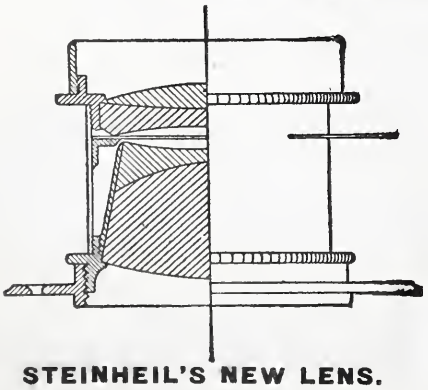
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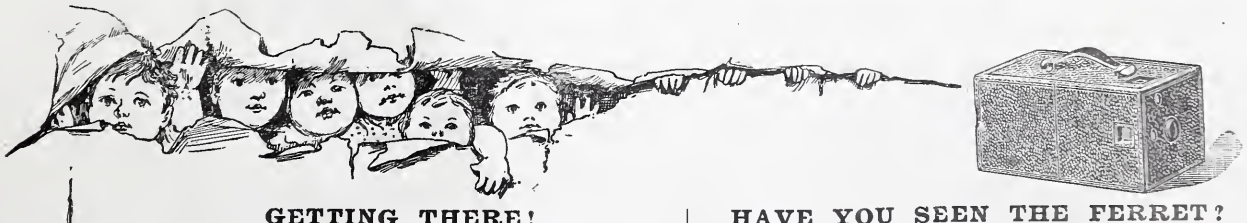
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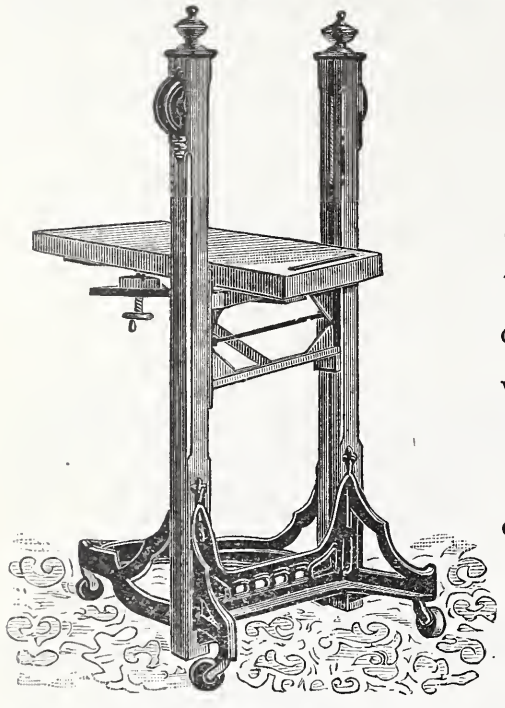
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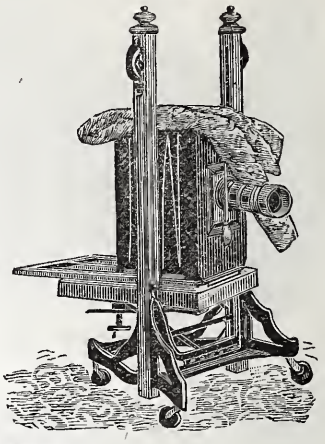
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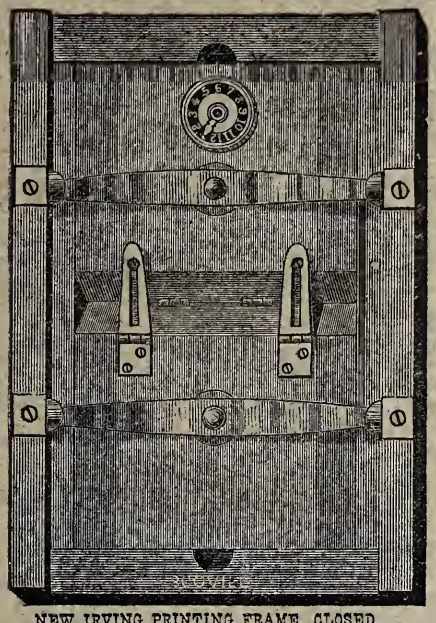
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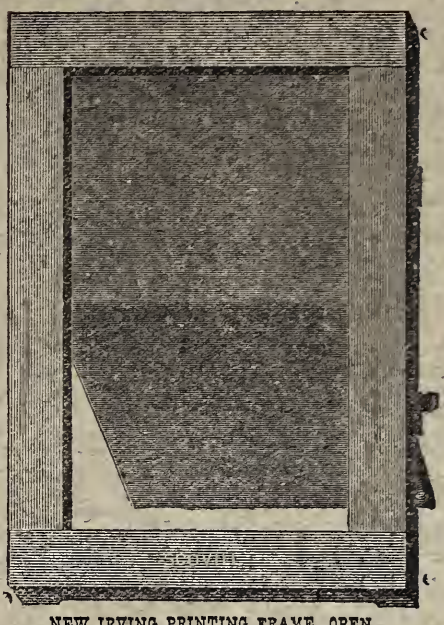
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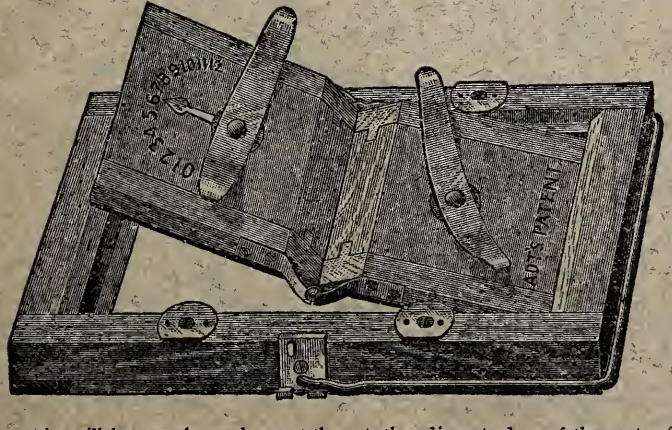
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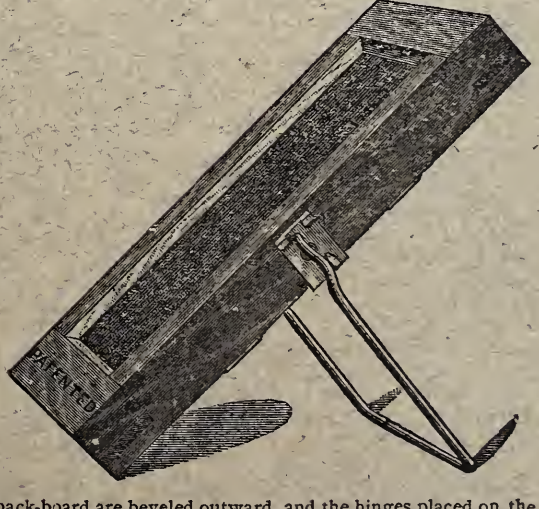
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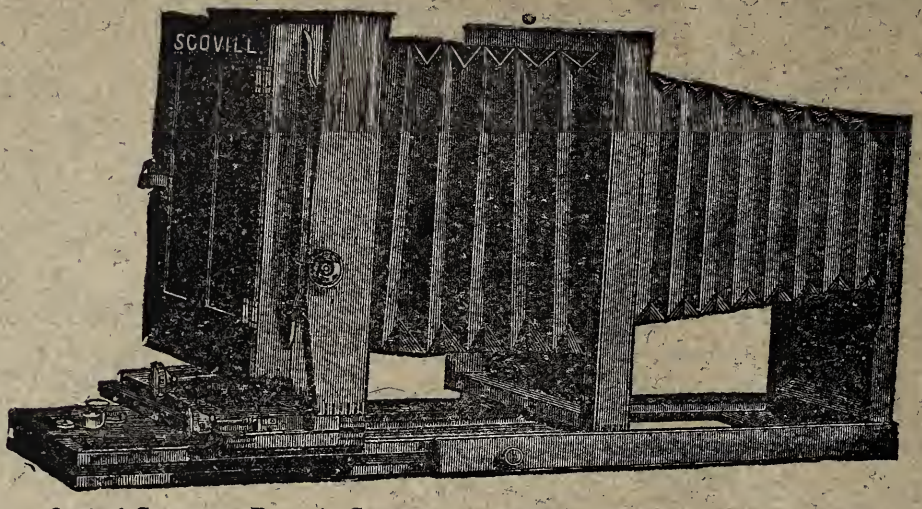
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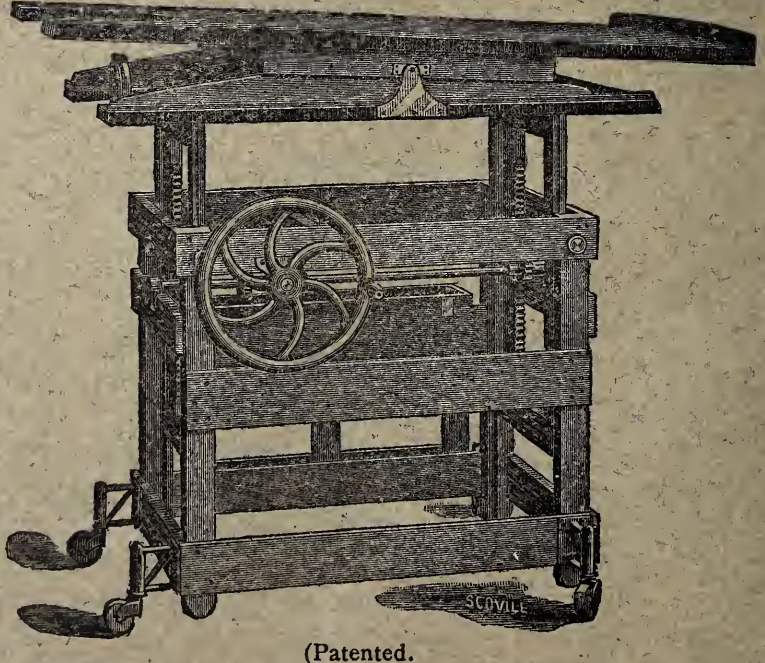
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HENRY R. TAYLOR, PHOTO. N.Y. PHOTO. GRAVURE CO.

EASTON'S BEACH

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, AUGUST 28, 1891. No. 519.

EASTON'S BEACH.

WE have the pleasure of presenting to our readers this week another specimen of artistic photography by Mr. Henry R. Taylor, of New York.

Easton Beach makes an unusually beautiful marine picture and the photogravure preserves all the spirit of the sea which was caught by Mr. Taylor's camera. One can almost feel the moist sea wind, and the cloud effect is unusually well caught.

"The picture was made last October," writes Mr. Taylor, "and represents the eastern end of the Bathing Beach at Newport. It was made during a very severe storm, and the wind was blowing at such a rate that it was impossible to keep the camera at rest by means of the tripod, so I was obliged to hold it in my arms to obtain this proof of the violence of the elements. The rocks have so little detail, owing to the fact that the sun was shining directly into the lens, and so on the other side of the rocks. The exposure was made on an Eagle plate, with a Ross rectilinear lens. The plate was developed with pyro and soda."

WE call the attention of our readers in this issue of our magazine, especially to Mr. Duchochois' "Rational Method of Reducing the Intensity of Negative Clichés," for it is entirely new. We have a justifiable pride in presenting them and the fraternity at large, through the PHOTOGRAPHIC TIMES, with a new method of so much practical value.

PHOTOGRAPHIC merchants are coming to the front in politics as well as in commercial enterprises. The Hon. Francis Hendricks, well known as the enterprising stock dealer, of Syracuse, has held the various positions of Fire Commissioner, Assemblyman, Senator, etc., in New York, and is now talked of as Republican nominee for Governor. Gen. Sargent, of Cleveland, was asked to accept the nomination for Mayor of that city some time ago, and he was also desired as Postmaster of the city; and now Mr. J. W. Morrison, of Pittsburg, has been nominated by the Republican party of Pennsylvania, for State Treasurer.

THE ALBUMEN PROCESS.

III.

WHEN we are dealing with materials comparatively insensitive to those we are in the habit of using, there is a great temptation to treat the matter of exposure as one of little importance. We are apt to think that when the exposure is very long a large percentage of "latitude" is admissible. I wish at once to disabuse the reader of this idea with regard to this process. It is a slow process compared with gelatine processes, and even compared with ordinary collodion processes, but the exposure is not to be trifled with. It is quite true that by altering the temperature of our developer—(see later)—we can make up for alterations of exposure to a considerable extent, but it will be found very inconvenient to keep changing the temperature of the developer, and dangerous as well as inconvenient. I have found out the evils of faulty exposure of late by a series of exasperating failures due entirely to the very shifty character of the light during the late "versatile" weather. In fact, I consider it much better to expose to artificial light even though the exposure is very long.

One thing that has struck me very strongly in the literature of this subject has been the remarkable difference apparently between the sensitiveness of my own plates and those quoted by other writers, though my plates have been prepared by formulas given by the other writers. I find one writer preparing plates by a formula which I carry out faithfully in preparing a batch of plates for myself; this writer says that we may take as an average exposure for average negatives ten to fifteen seconds to diffused daylight, and he develops with a solution

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perhaps ten times as acid as the solution I use. I find that even with my much less acid developer the exposure required is more like thirty than ten seconds, though I used my developer hot and he used his cold. I find this sort of discrepancy constantly, and am at a loss to account for it unless it be due to the fact that these writers used particularly thin wet plate negatives. But the lesson to be learned from this is that I must not speak with anything like certainty in suggesting suitable exposures for the negatives of other workers. My own exposures are about as follows: an average gelatine-bromide negative is exposed for fifteen to twenty seconds to diffuse light on a day when the light is good but the sun not shining. Or I expose a similar negative to a No. 3 burner [gas] at a distance of eight inches for half an hour to thirty-five minutes. As I said above I prefer the artificial light to the daylight, because by miscalculation of actinity I may expose two or three seconds too long in the one case, but I am not likely to make a mistake of several minutes in the other. Some negatives require fifty seconds or two hours respectively.

In making the exposure it is well, especially in exposing in daylight, to protect the edges of the plates by the rebates of the printing frame or by a mask, for if this is omitted there will be a blurred part in the positive. The mask should be very thin, and it should be slightly larger in aperture than the mask to be afterwards used for the finished slide when mounted.

The exposure for a stereo slide may be slightly longer than when we are going to make a lantern slide. At least there is more danger in over-exposing a lantern slide than a stereo slide. I do not see much use in using plates with one slide ground for stereo slides, for in the stereoscope there is usually a ground glass; and it will sometimes be found that a slide when finished is more suitable for a lantern than for a stereo slide, and if the back is ground we cannot use the slide for the lantern.

Arrangements should be made for keeping the developer hot. A temperature of 120 Fahr. will be found suitable. If the developer is to be used cold much more exposure will be required, and even then the tone will not probably be so good as if the developer is hot. Accordingly the solution and the distilled water in which the plate is first bathed should be kept in flasks which will stand heat. A water bath would be a good arrangement wherein to keep the flasks, but I simply place my flasks on a sheet of iron over a Fletcher gas burner. If it is intended to make a great number of slides a corresponding number of glass or porcelain dishes should be procured; but I take for granted that I am writing for those who wish only to make a few slides at a time.

The developing solution I use is as follows:

A. Water	10 ounces
Citric acid	5 grains
Acetic acid, glacial	1 dram
Add—	
Pyro	30 grains
B. Water	1 ounce
Citric acid	5 grains
Silver nitrate	5 grains

The toning solution should be made at least a day before it is to be used. The following is a very good formula:

Water	10 ounces
Hypo	2 ounces
Dissolve and add—	
Gold chloride	4 grains
in about 1 ounce of water	

This the old "*sel d'or*" toning bath. Almost any other toning solution may be used, as a sulphocyanide and gold, or a platinum chloride and phosphate bath, or the common gold and acetate bath, but on the whole the *sel d'or* or will be found as good as any.

A word regarding the developing solution given. I find formulas given in various books and papers wherein the quantity of acid is greatly in excess of what I use. I have repeatedly made up solutions by these very acid formulas, but never have found any advantage in them; but on the contrary I find that they necessitate much more exposure and have a tendency to produce hardness. A well known formula shows 1 ounce of acetic acid in place of my 1 dram, and another writer increases the dose to 1½ ounce. This is another discrepancy which I am at a loss to explain, for I find no object whatever in these large doses of acid. If there is in the developer enough of acid to prevent precipitation of the silver no more should be required. At first I took the "1 ounce" for a misprint, till I found it repeated and even increased in other papers. Citric acid used alone in the developer has a tendency to give cold blue tones, and acetic acid used as the restrainer has more proclivity to yield red tones. I find that the two acids mixed in the proportions given answer our purpose very well, the tone after suitable exposure being a good one for the subsequent operation of toning.

With regard to the *sel d'or* bath it may be remarked that some good workers found it advisable to add to the forumla I have given a certain quantity of silver chloride blackened by exposure to

light. I have carefully tried this addition and am unable to discover any action good or bad arising from its use. But any one wishing to try for himself may add to the above formula about 60 grains of silver chloride made by adding to 70 grains of silver nitrate in solution 45 minims of hydrochloric acid, and then exposing the precipitate to light for a short time, till it becomes black. It need not be said that the *sel d'or* bath both fixes and tones the plate.

During development a piece of cotton wool will be required for a purpose which will be shown presently. A moderately small tuft is enough to rub the film when any silver is precipitated on it.

In general the operation of development consists of applying to the plate about an ounce of the Solution A, to which we add from time to time small quantities of Solution B, beginning with a drop or two and finishing with a quantity varying from 20 to 40 minims. As this operation of develment is at once the most important and the most interesting in our process we shall leave a detailed account of it for a separate chapter.

ABOUT A RATIONAL METHOD OF REDUCING THE INTENSITY OF NEGATIVE CLICHES.

A New Process.

The clichés may be too intense either from yellow fog, over development, or local opacities.

We have nothing to say on the means employed to remove yellow fog—they do not alter the character of the picture; nor on those which attenuate the contrasts, or local opacities, which if done by redevelopment answer pretty well; but we think that the reduction of clichés generally too intense is effected by chemical actions which are often objectionable.

Among the processes employed for the purpose in question, the old one, that which we first employed, both in the calotype and the collodion process, consists in treating the cliché with a solution of potassium cyanide. It is the best on account of its simplicity and of not requiring much after-washing. The drawback in the gelatine process is that the solution of the commercial article, KCy, has, on account of its strong alkalinity, a tendency to produce blisters and frilling by softening the gelatine film. This can, however, be easily prevented by using pure potassium cyanide in solution in alcoholized water.

The next process in order of publication is that devised by Alexis Gaudin. The reduction is effected by ferric sulphate (Monsel's salt). This process requires to eliminate the iron salt by first washing the gelatine film in a diluted solution of hydrochloric, citric or oxalic acid, etc. It is little employed.

Then come Spiller's process, which consists in treating the cliché by a solution of cupric bromide and common salt; that of Farmer, who uses potassium ferricyanate in solution with sodium thiosulphate; and, lastly, Monckhoven's process, by which the reduction is effected in attacking the silver with ferric oxalate, the silver salt formed being dissolved by sodium thiosulphate, as in Farmer's process.

The latter processes—that of Farmer and Monckhoven—require prolonged after-washings to eliminate the thiosulphate. For this reason the process of Mr. John Spiller is preferable, as the solvent of the cuprous and silver bromides is simply the common salt, an entirely harmless compound, should any traces of it be left in the film.

As it is seen, in all these processes *the intensity is reduced by dissolving the metallic silver forming the image.*

If employed for the reduction of clichés generally too intense from over-development, the relative value of the local intensities may be little altered, provided the operation be conducted with great care; otherwise—and, indeed, this is of frequent occurance—it happens that the penumbras and the details in the shadows, being formed by their layers of metallic silver, are disolved, and, as a consequence, that the cliché, if not spoiled past remedy, has lost that admirable gradation from lights to shades, that delicacy of details which make a photograph such a beautiful realistic image of nature.

A rational process would be to reduce the intensity not by dissolving the silver, but by transforming the color of the image into one more actinic or rendering the cliché more transparent, so that not only the desired desintification would result, but if the intensity were too much reduced, it would always be possible to strengthen it.

For example: The cliché previously soaked in water is immersed in a very diluted solution of nitro-bromhydric acid or of nitro-chlorhydric acid (*aqua regia*). In the solution the image, viewed by transparency, seems to intensify on account of the formation of the silver bromide (or chloride), but when exposed to sunshine for a certain period it becomes more transparent from the reduction of the silver haloid, and turns to a bluish or violet black, that is, a more actinic color than the original one.

The operation should be made by diffused light and the cliché allowed to dry before exposure to the luminous action, for, if dried in the light, the silver reduction would be of unequal intensity, the parts drying first being the lightest. In fact, when exposed under water, or, better, in presence of an absorbent of chlorine or bromine, the reduction is more complete and darker, which is generally advantageous.

Of course the desintification is proportionate to the more or less complete transformation of the metallic silver, the image, into silver haloid. And it is in this which resides the difficulty of the process; it requires some experience to succeed. There is, however, little danger of spoiling the cliché, for should it be too much weakened from being bleached through, the remedy is at hand; it suffices, *after the insolation*, to redevelop with a very weak developer, pyrogallol, eikonogen, etc., or to intensify with mercuric chloride, or by any other intensifying processes.

No fixing is required after these operations. It is only necessary to well wash the cliché.

We have also experimented with iodohydric acid, and, in lieu, with iodine. But the results were not generally as good. The silver iodide does not blacken in the light, and remains apparently not acted on, and when treated by the developer gives rise to a great increase of intensity. This can be regulated during the redevelopment and an after treatment with a solvent of silver iodide, sodium thiosulphate, etc.

The iodide process has given us satisfactory results for the intensification of very weak negatives. As said above the redevelopment should be done after insolation, and with diluted developers, in order to have the action well under control.

P. C. Duchochois.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 417.)

CHAPTER II.

Chemistry of the Carbon Printing Process.—In the paper by Mungo Ponton, already alluded to, and which he published in 1839, he describes clearly and forcibly the effect of light upon potassium bichromate. Ponton writes: "Paper immersed in bichromate of potash is powerfully and rapidly acted upon by the sun's rays. * * * When an object is laid in the usual way on this paper, the portion exposed to the light speedily becomes tawny, passing more or less into a deep orange, according to the strength of the solution and the intensity of the light. The portion covered by the object retains the original bright yellow tint which it had before exposure, and the object is thus represented yellow upon an orange ground, there being several gradations of shade or tint, according to the greater or less degree of transparency in the different parts of the object.

"In this state, of course, the drawing, though very beautiful, is evanescent. To fix it, all that is required is careful immersion in water, when it will be found that those portions of the salt which have not been acted on by the light are readily dissolved out, while those which have been exposed to the light are completely fixed on the paper. By this second process the object is obtained white upon an orange ground, and quite permanent."

Ponton's bichromate pictures may have appeared "beautiful" to his astonished eyes; but it is to be feared that they would not gain many admirers now-a-days.

In the presence of some organic material, as the fiber of paper, the size with which the paper is usually coated, etc., bichromate of potash undergoes the following decomposition when exposed to light:

$$K_2Cr_2O_7 = K_2CrO_4 + CrO_3$$

Bichromate of Potash *produces* Chromate of Potash *and* Chromic Acid.

The chromic acid is then further decomposed as follows:

$$CrO_3 = CrO_2 + O$$

Chromic Acid *produces* Chromium Peroxide *and* Oxygen.

The chromium peroxide is of a tawny color, and—by its contrast with the bright yellow bichromate—produces the picture. But by prolonged exposure to light, the chromium peroxide loses another atom of oxygen, and becomes reduced to chromium sesquioxide, thus:

$$2CrO_2 = Cr_2O_3 + O$$

Chromium Peroxide *produces* Chromium Sesquioxide *and* Oxygen.

This chromium sesquioxide is of a greenish tint; and the contrast which it produces with the bichromate is not so marked; hence by long exposure the picture becomes weaker.

Now what becomes of the oxygen which is liberated? It combines with any colloid substance (as gelatine) which may be present, and renders it insoluble. This was very clearly explained by Poitevin in a book* which he published in 1862: "The chromic acid loses (by exposure to light) a part of its oxygen, which combines with the organic matter and renders it insoluble. When the film is washed, the carbon remains adhering to the exposed

* "L'impression photographique sans sels d'argent." Paris: Leiber, 1862.

insoluble parts, and forms the picture." As to the precise nature of the oxidized gelatine product formed, most of what we know is due to the researches of Dr. Eder published* in 1878; but the subject is a difficult and obscure one. Captain Abney gives the following equation (which we have simplified) as representing the final action of the bichromates upon organic matter generally:

$$\underset{\text{Organic Matter}}{C_x H_y O_z} + \textit{and} + \underset{\text{Potassium Bichromate}}{K_2Cr_2O_7} = \textit{produce} \underset{\text{Potassium Hydrate}}{2KHO} + \textit{and} \underset{\text{Chromium Sesquioxide}}{Cr_2O_3} + \textit{and} \underset{\text{Oxidized Organic Matter}}{C_x H_y O_z OO}$$

In this equation the letters x, y, and z are used simply to denote indefinite qualities of each element. The oxidized organic matter (gelatine, etc.) is found to be insoluble in liquids in which the ordinary organic matter is quite soluble.

Dr. Paul E. Liesegang has written an excellent "Manual of the Carbon Process,"† which should be studied by all who desire to practice this excellent and permanent method of photographic printing.

* "Ueber die Reactioner der Chromsäure und der Chromate auf Gelatin, Gummi, Zucker, etc." Wien, 1878.

† Translated from the German; and sold by the Scovill & Adams Co.

W. Jerome Harrison.

(*To be continued.*)

ART IN PHOTOGRAPHY.

[Presented at the Convention of the Photographers' Association of Ohio]

THE first questions agitating the photographer's mind are, "Is there art in photography?" and "To what extent has it been cultivated?"

The devotee of the palette, brush, and paint, politely informs you that there is no art in photography, and that photographs are only machine made, and that they are not, strictly speaking, art productions. We admit that our art is not a creative art in the sense an artist uses the term: that is, we cannot make a picture from nothing; we must have our subject and our accessories to work with in order to make our productions. Shall we not then take up some of the rudiments of art, and then compare notes, and thereby ascertain whether or not we have any claim on so high and noble a profession. And first, let us study composition.

The master will inform you that composition is the art of arranging figures or objects so as to adapt them to any particular subject. In composition three requisites are necessary: that the story be well told; that it possesses a good general form; that it be so arranged as to be capable of receiving a proper effect of light and shade.

The form of a composition is best suggested by the subject or design, as the fitness of the adaptation ought to emanate from the circumstances themselves, hence the variety of composition.

We must admit that in composition we are, to some extent, at the mercy of the lens we employ.

The artist probably decides to paint a group, and in his mind he has formed a circle, but would not think of representing that group in a real circle. No, he steps back in his imagination a few paces or rods, possibly, according to the size of the group, and that circle no longer remains a circle, but an oblong. Does not the photographer see that circle the same, and with the same artistic eye? If he has given his subject any thought and study he will, most assuredly. Does not the photographer have a point of sight in his productions? Does he not aim to have a pleasing effect?

These and many other points that go to make up a good photograph must be well understood by both artist and photographer in order to bring them in good requisition.

In case of a bust picture the operator must decide upon the position; whether to elevate his camera or have it level; whether to take a front view or side view; whether to bring his subject under the light and light with contrast, or more evenly; all these points are requisites to a good picture.

The next point in study in art is chiaro oscuro. Again we are told that harmony which is produced by chiaro oscuro, or by the means of black and white, depend upon the quantities of light and dark employed, and the disposition of them; sometimes meeting in extremes of opposition in other portraits, gliding away with imperceptible softness into undefined spaces, the light sometimes falling ing on combined objects, giving out a faint halo around the group. You may have observed this in photographing light objects on a dark ground. Not every lens will show this—some will.

The power of producing a variety of pleasing sensations upon the eye mainly rests on the conduct of the chiaro oscuro. Objects are rendered either strong or delicate, according as they advance or retire on the perspective plans of the picture; parts are forced upon the spectator's attention by their clear defined character, and assisted from contrast by groups of indistinct images imbued with the properties of middle tint.

I was quite surprised at our last two conventions on some of the criticisms offered on the pictures upon the screen; the criticisms were on the pict-

ures having more than one point of light. It is a fact that a bust portrait should only have but one light, but in half length or figures, it is not contrary to art to have more than one point of light. And so we could go on to enumerate instances where art and photography, or art and art in photography, come to a perfect agreement. Our photographers who make a study of *genre* photography must study invention, which is claimed to be the great soul of painting.

The subject he desires to illustrate must be created within the mind, and with his hands he must arrange every detail, from the most important to the minutest, thereby proving that art in photography and art go hand in hand.

The operator has no choice of subject, but must do his best with each subject presented; his choice must be in the point of view, in the light and shade, and the general use of background and accessories. one essential in every really good photograph is a point of vision, one that will please the eye and not tire it, after carefully observing it in all its phases. In case of a front view the eyes form the point of view, with all the rest subservient and gradually fading out of view. By observing a few of these rules we obtain what the artist calls "drawing," which we must acknowledge a great many photographers lack, and when we touch the point it brings us to one of the essentials, and that is the background. There is more thought and study required in that accessory than any other. Writers in our photographic journals have been advocating reform in background, and advising to keep them back, not bring them too near the subject.

In case of a bust picture, I think if your ground is the right kind, you can bring it well up and thereby secure better effects than by keeping the ground five or ten feet away. If your ground is too plain, take a little common chalk and a tuft of cotton, and in a few minutes you can have the relief you aim at, by a few well directed strokes. Art seems to be made up of small bits, and if we are able to carry them in our mind and then put them together correctly, we shall be able to behold art in photography. *Bowersox.*

TO A PORTRAIT.

DID the wing of some dark raven,
By the hand of Love enslaven,
Leave its dusky hue engraven
On the tresses of your hair?
Did the snowy lily whiten
Your fair face? Did roses brighten
And with crimson petals heighten
On your lips the color rare?

—*The London Hawk.*

A COMBINATION OF THE CARBON AND STAINING PROCESSES FOR THE PRODUCTION OF TRANSPARENCIES, LANTERN AND STEREOSCOPIC SLIDES IN COLOR.

[Paper translated and read by Mr. Lyonel Clark before the London Camera Club.]

IT has been found quite impossible, in spite of numerous experiments and trials, to produce hand-painted positives or transparencies in a satisfactory manner, and especially when these positives take the form of lantern or stereoscopic transparencies on glass.

Even by using colors of the most perfect translucence, the work would be none the less difficult, and the results would be still incomplete, whatever the talent of the artist or the perfection of the materials employed.

The amount of enlargement that this class of photographic work has to undergo makes their defects still more apparent, and the slightest thickening or running of the colors forms opaque blotches of disagreeable effect.

One must therefore seek out some method of doing away with this handwork, that cannot possibly realize the necessary excellence.

There is a certain process of coloring photographic images formed of bichromated gelatine, known as the "staining process," which is familiar to a certain number of photographers, but which deserves a much wider acquaintance.

Shortly, this process, which is of the greatest simplicity, consists in obtaining on any transparent plate, whether of glass or celluloid or mica, a carbon image of a brown color, but having a very small admixture of coloring matter. After the usual development, the proof is allowed to dry, and it is then placed in a solution of any aniline or other liquid color. The gelatine image, which is a true relief, being thicker or thinner in places, according to the lights and shades of the picture, sucks up more or less of the coloring dye, and does this proportionally to the thickness of the gelatine, so that finally one obtains an image that has entirely changed its original color, and has become red, blue, or green, according to the color of the dye-stuff employed. This image only then requires washing and drying to complete the process.

The preceding accurately describes the staining process where merely monochromatic effects are sought for.

To produce polychromatic images, the process becomes more complicated, for it is necessary to have at least three separate negatives, correspond-

ing each to one of the primary colors of the spectrum. For instance, one negative should represent the yellow, one the red, and lastly, one the blue rays of the spectrum.

We will not here enter deeply into the more or less successful methods of obtaining such a gamut of negatives; we will simply remark that practically they can be obtained as follows: The first with an ordinary plate, where the yellow, green, and red rays will have less photographic action than the blue and violet rays. The carbon transparency from this negative will furnish the image that is to be dyed yellow, preferably with a strong concentrated solution of aniline yellow or picric acid.

The second negative can be obtained on a plate orthochromatized (by erythrosine) to the green and yellow rays, and used *without* a color screen.

This plate being rendered sensitive to the green and yellow rays, and being naturally also sensitive to the blue ones, only the red rays and their combinations will have no effect on it, and it will therefore furnish the carbon positive that is to be dyed red, carmine, or magenta.

The third negative is the only one which requires an extra length of exposure, and this on account of the yellow orange screen, which is indispensable in order to annul all photo-action of the blue and violet rays.

This plate should be chosen from those orthochromatic plates that are especially sensitive to the red rays, and even if not found in commerce, can be easily prepared by one's self.

The exposure for this negative will be thirty or forty times longer than that required by the ordinary plate, that is to say, an exposure of thirty to forty seconds if the ordinary plate requires one second, or thirty to forty minutes for interior work where the original required one minute.

By the aid of the closed screen all action of the blue rays will be prevented, and only the yellow and red will act ; and, therefore, the negative will give the carbon transparency that will have to be dyed or stained blue.

If this method of producing three negatives possessed the same value in practice as some theoreticians have claimed for it, it would simply be necessary to superimpose the three monochromes one on the other, and a satisfactory result should be thereby attained.

Unfortunately, it is not so in practice, and it is necessary to put a certain amount of retouching without, however, compromising their essential values. In the case of lantern slides, it is possible to make the negatives of large size, and to do the retouching on these ; one then makes from these positives that are combined on a single sheet, and one can then make, by a single operation, a negative of the subject of lantern size.

One cannot, however, follow this plan in the case of stereoscopic slides, as these must all be worked direct.

If necessary, a single negative on an ordinary plate would suffice, but in this case two reproductions would have to be made by any of the well-known methods, and these two, when retouched, would correspond to the red and the yellow, the first negatives giving the blues. The results are not so perfect, but are still much more satisfactory than anything that can be done by brush-work direct on the positive.

I mention this method because as a rule workers may not have to hand the necessary preparations to enable them to prepare or work orthochromatic effects, and it is at the same time interesting to note that it is possible to obtain impressions in color by means of a single negative taken direct from nature.

As regards their application to scientific works these polychromatic transparencies should be of the greatest value, and are generally very much more easy to produce than when artistic results are sought after. A very useful scientific application of the process is to be able, by means of different tints, to separate and clearly distinguish different portions of any object.

The same original negative will in this case be sufficient, and from it must be formed the reproductions by stopping out the desired portions on it.

Thanks to this staining process, the subject can either be made to stand out on a colored background, or *vice versa*, the subject can be tinted, and the background remain of another color.

This result can be obtained without having recourse to several negatives, provided that the diapositive is on a gelatino-chloride plate. On this image one covers all those parts that are to be retained with a thick bitumen varnish. As soon as this varnish is dry, the plate is immersed in the required dye. As soon as it has absorbed the necessary coloration it is washed and then dried, and the bitumen varnish is then removed with benzine. The portions already dyed are then protected by the same varnish, and one then dyes these parts that were protected hitherto, in another color solution.

It goes without saying that the process is not applicable to all combination of colors. Nevertheless, with two colors, say blue and yellow, for example, one can obtain, by two operations only, pure yellow, pure blue, and, by their mixture, green. In order to obtain this color one naturally refrains

from stopping out those portions in either operation. One can easily conceive the numerous applications the process is susceptible of, whether one employs carbon positives or simple gelatine transparencies.

One might raise the argument that such uniform tints could equally well be produced by the brush, but one forgets how difficult it is to get even washes on gelatine, while by the staining process one obtains the most perfect uniformity and purity.

But we must return to the special object of the present paper, that is to say, to the production of colored positives by means of the stained carbon process.

For this is required carbon tissue with as little coloring matter incorporated in it as possible. It is necessary, however, that there be some color present in order that one may follow the development of the image, as uncolored gelatine would give no indications of the necessary contrasts.

In every case one of the monochromes, the blue or the red, should be on a tissue that is more highly charged with color, so as to clearly mark the details of the image. This is of less necessity, however, for the other two.

The essential question is the exact register of the monochromes when superimposed one on the other. This registration only becomes possible by the use of tissues of the same make and sample, and then must always be used the same way of the tissue. If one image is printed on the selvage, and the other across, it is clear that the unequal expansions will destroy all register.

A practical method of doing away with such errors is to score the back of paper support across in each sense, and then to always place the paper in the same position, as regards the images, as these scores.

The tissue can be developed on plates of celluloid or mica, in order to facilitate the superposition of the different images. These substances do not swell or get distorted in the bath, and are not penetrated or affected by the dye, and being very transparent the image can be seen through them.

These impressions are taken direct by single transfer. For stereoscopic slides they are mounted on ground glass, but for lantern slides on ordinary glass.

In the case of lantern slides it is advisable to varnish the images, as the three images might otherwise absorb too much light.

Slight retouching can be added by the brush without difficulty, provided that very transparent colors be used, and that over very restricted portions, as the slightest false stroke of the brush is magnified to enormous proportions on the screen.

In an account necessarily cut short, like the present one, I am unable to go into details to any extent, but I hope that what I have described above will suffice to give an idea of the application of the process I have aimed at.

I intend, moreover, to produce shortly some examples of each of the methods I have proposed above, which I shall have the pleasure of sending to the club as a continuation of this present paper, and as some slight mark of my gratitude and appreciation of the kind and sympathetic manner in which I have been treated by my brother photographers in that club.

Leon Vidal.

THE PHOTOGRAPHERS' ASSOCIATION OF OHIO.

THE convention was called to order by President Lewis, Tuesday morning, August 11th.

Communications were read from Vanloo and Frost, of Toledo; O. Bill and Overton, of Cleveland, O.; also from the Iowa Association of Photographers.

Mr. Abbott said that the American Aristotype Co. was willing to demonstrate to any one the working of their paper at Mr. Baker's gallery in the afternoon. The gentleman representing the Omego Co. spoke of their willingness to demonstrate also. Mr. J. M. Appleton, of Dayton, O., read a motion, which was seconded, that the public be invited to visit the display in general. Mr. C. Heatherington, of Chicago, offered two prizes of $25 each; first prize for the best grouping, and the second prize for the best posing, both to be done at the convention in the evening.

A vote of thanks was given to Mr. Heatherington for his kind offer. It was moved and seconded that the Chair appoint three judges for the same. Messrs. L. M. Price & Co., of Cincinnati, O., invited the brothers to a large bowl of lemonade. There being no other business, the convention adjourned until 2.30 P.M.

AFTERNOON SESSION.

The Committee on Constitution and By-Laws then made their report.

After some debate it was moved and seconded that the constitution and by-laws be accepted as a whole. Under the head of the good of the order, a paper was read by C. Butterworth, of Wilmington, O., entitled "Some Suggestions." It was then moved and seconded that a vote of thanks be given to Mr. Butterworth for his excellent paper. Mr. L. C. Overpeck, of Hamilton, O., then read a paper entitled "Prices," which was highly appreciated by the association. An invitation was given to all who were not members to join the association.

THE EVENING SESSION

was opened by J. M. Appleton composing a group in competition for the prize offered by Heatherington. Mr.

Appleton was followed by Mr. Schneider, of Columbus, O., who competed with the same group; finally, the judges awarded the first prize on grouping to J. M. Appleton, of Dayton, O. The competition for the second prize on posing was opened by Mr. Schneider, followed by J. M. Appleton. This prize was awarded to Mr. Schneider. The gentlemen selected as judges were: J. W. Mock, of Dayton, C. Butterworth, of Wilmington, O., and J. C. Harring, of Massillon, O.

There being no other business the convention adjourned.

Wednesday Morning.

Communications were read from C. Gentile, Editor of the *Photographic Eye*, at Chicago, and one from S. L. Roloson, of Delphos, O. The subject for a permanent location was then taken up. Mr. Cassaday, of the Seed Dry Plate Company, made a motion that Columbus be selected. Mr. L. M. Price thought it a little premature to think of a permanent location. J. M. Appleton, L. C. Overpeck, and N. Howe also thought it a little early yet to decide on a permanent location. A motion was made by L. H. Hume that we hold our next meeting at Columbus, O., seconded by Mr. Miller. Motion carried.

The nomination of officers for the ensuing year was then taken up. Committee on Nominations were A. M. Keteheni, S. P. Tresize and J. M. McClure. Their selection of officers were: For President, Ford Lewis, of Selina, O.; First Vice-President, J. C. Schneider, of Columbus, O.; Second Vice-President, I. Wolfe, of Lancaster, O.; for Secretary, L. H. Hume, of Lima, O.; for Treasurer, J. C. Harris, of Massillon, O.

It was moved and seconded that the rules be suspended, that we nominate them by acclamation. A paper was then read by Mr. Bowersox, of Dayton, O., entitled "Art in Photography."

It was moved and seconded a vote of thanks be given Mr. Bowersox for his excellent paper. There being no other business, the sssociation adjourned until 2.30 P. M.

Afternoon Session.

Opened by President Lewis. First in order was a report of the Secretary and Treasurer, after which a paper was read by C. Heatherington, of Chicago, entitled "General Photography," which was highly appreciated by the association.

It was moved and seconded that a vote of thanks be given to Mr. Heatherington for his excellent paper.

There being no other businesss the association adjourned until the next meeting in Columbus, O.

Dick Ebersole,
Secretary.

THE BROOKLYN ACADEMY OF PHOTOGRAPHY.

The regular monthly meeting of the Brooklyn Academy of Photography was held Thursday evening, August 13th, in the rooms of the organization, 517 Fulton Street. The meeting was an enthusiastic one, and will be recorded as the most important gathering of amateur photographers ever held in this city. President Frank Le Manna, who returned a few days ago from an extended visit to Paris, presided. The routine business consisted of the election to membership of two applicants and the rendering of the reports of various committees. The president announced that the Société de Francaise de Photographic, a society established in Paris in 1854, and to which all the eminent scientists of not only France, but the whole world, belong, had presented to the Brooklyn Academy of Photography a life-size bust of Daguerre, the discoverer of the latent image, which is an exact counterpart of the famous marble bust of Daguerre now in the possession of the French Society.

The bust was unveiled and the members were enthusiastic over the honor paid to the Brooklyn Academy in presenting to them such a valuable work of art.

Mr. Janssen, the President of the Société de Photographic of Paris, also presented to the Brooklyn academy, on behalf of his society, a portrait of Poitevin, the discoverer of solar action on soluble bichromates, and of photolithography, the first to suggest gelatine as a film; a portrait of Fox Talbot, contemporary of Daguerre, who reported to the Royal Society, in 1839, his researches on chloride of silver, and soon after showed that there were other agents besides the vapors of mercury capable of revealing or developing the latent image. He first used gallic acid, and is without question the father of photography in the sense of being the first to make a negative from which solar printed positives could be produced in practically unlimited quantities.

A portrait of Nicephore Niepce, doubtless the first searcher who fixed an image in the camera. Letters show that he was studying the question as early as 1814, and that in 1824 he obtained an image by covering a plate with bitumen of Judea, exposing it in camera and developing by washing away the parts not touched by light, and hence insoluble, but with from eight to ten hours' exposure, in 1829, he associated himself with Daguerre, but he died in 1833.

The Brooklyn Society of Photography presented to the Academy a splendid Scovill & Adams enlarging, copying and reducing camera of the latest improved pattern. The Brooklyn Society amalgamated with the Academy about three months ago. The desire of the members of the Brooklyn Society was to have an amateur photographic organization in this city second to none in the United States. By combining forces with the Academy the many expert amateurs in this city have been joined by fraternal ties, and from now on the experience gained in this great art will be happily exchanged one with the other.

The Brooklyn Academy has of late found the quarters at 517 Fulton Street entirely inadequate to meet the needs of the members. It was concluded that the Academy would, on the first of September, move into larger quarters in the Brooklyn Trust Company building, at the corner of Montague and Clinton Streets. A large and airy room on the second story has been leased and will be fitted up with all the modern photographic appliances.—*Brooklyn Eagle.*

"'**THE PHOTOGRAPHIC TIMES**' has helped me out of many a difficulty in the past," writes Mr. W. J. Hickmott, the well-known amateur, of Hartford, Conn., "and I need its assistance more and more as time goes on."

Notes and News.

Professor Ehrmann exhibited, in the Amphitheater at Chautauqua, about one hundred and sixty lantern slides made by students of the Chautauqua School of Photography, Saturday evening, Aug. 15th.

"The Last Convention," writes President Hastings, "is the most successful financially since Buffalo, 1885, and that year no medals were bought, increasing the expenses. There will be about $900 profit this year."

"The American Annual of Photography" for 1892 is almost completed, so far as the editorial end is concerned. It contains articles by the most eminent authorities on photographic matters in every part of the world, and will be illustrated by pictures fully worthy of the letter-press.

Iowa Photographs for the Exposition.—The Iowa Columbian Commission has authorized a firm of Des Moines photographers to prepare photographic views of the State for exhibition at the Fair. It is expected that 7,138 different views will be prepared, an average of seventy-two to each county.

Non-Union Photographs.—Special Agent O'Brien, of the bricklayers, has caught on to a new scheme. Hereafter he will carry a camera with him with which to photograph all non-union men wherever found at work. These photos will be sent to all the local unions in the principal cities for future reference.—*Pittsburgh Dispatch.*

A New Kind of Light.—A French photographer announces a new departure in the many hundred magnesium lamps. There is nothing especially new in the construction of the burner, but there is a ring to catch any unburnt magnesium. The ordinary rubber bulb is supplemented by a reservoir, which is first filled with air by repeatedly squeezing the ball. A cock is then turned on, and the air from the reservoir carries a continuous supply of magnesium through the flame, producing a continuous light as long as the cock is turned. The light given is very powerful, and the ability to prolong it as long as desired renders it most useful for interiors.—*San Francisco Call.*

Iowa Photographers.—DES MOINES, Ia., Aug. 4.—The second annual meeting of the State Photographers' Association convened in this city to-day with about a hundred persons present and a large variety of exhibits. President F. Kilborn, of Cedar Rapids, was in the chair; and Secretary I. Verrian, of Des Moines, was at his desk. A large number of new members were admitted. Three judges were appointed to inspect the exhibits and decide upon the distribution of three prizes. The first, a magnificent lens, for the best twenty-four cabinets; second, several backgrounds for the second best cabinets, and, third, a 14 x 17 inch camera box for the best general display. Mrs. Schooley, of Indianola, gave a very interesting report of the national convention at Buffalo, and several other speeches were made. The afternoon was spent in a pleasure trip up the river on steamers.—*Burlington Hawk Eye.*

Obituary.—Died, at Pasadena, Cal., July 6, 1891, Selden Lord Walkley, formerly of Philadelphia, Pa., aged twenty-four years.

The Camera Fiend.—*Dear Taverner:* Don't you think it is about time to call the camera fiend to halt? Not content with taking pictures of ladies unknown to him on the hotel piazza and on the promenade, he now invades the bathing beach and "takes" young women in the scant drapery of the bath. Now, no true gentleman would at any time take the portrait of any woman against her will, and when any chance fellow presumes to photograph ladies in bathing costume without their permission it becomes an outrage that ought to be summarily stopped. I am an amateur photographer myself, but I hope I know the line where license in the matter of photographing figures ends—and it is a good way this side of bathing women. I therefore ask you, Taverner, and all other men (particularly such as are photographers), who have any regard for the sensibilities of their lady friends and relatives, to enter a crusade against such camera fiends as thus transgress propriety; and when a picture of this kind has been taken without permission at once to demand and destroy the negative at all hazards, even, if necessary, to the breaking of the offending camera. Very truly yours,

PHILO. *in Boston Post.*

The Photography Fad Increases.—Summer hotels in picturesque regions—and who, by the way, ever knew of one in any region not, at least, alleged picturesque—are fitting up dark rooms for the use of the patrons in developing negative plates. At Bar Harbor and in the Catskills the camera epidemic seems to have taken on the most violent phase—all of the women go about with stained fingers and the snap of the kodak is perpetual.

In this industry, like most others of the amateur sort, there are a few who excel and a great majority who merely enjoy. It is remarkable, however, how largely the amateur photography element has entered into the ethics of social life. At suburban dinners and luncheons now, if the hostess is skilled, it is quite common to have the pretty nooks of the place or house transferred, *a la* kodak, to the souvenir card, an especially happy thought being that of the bride who, to a small dinner in her new home of her intimates, contrived that each pictured sketch of a cozy corner should contain the wedding gift of the one for whom it was designed. Another young woman, a bride in prospective, now traveling abroad, snaps her kodak upon the view from her window at every fresh stopping place, using the print as a letterhead for the loving epistles frequently indicted to her *fiancée* in this country. "And thus," she says, devotedly, "Arthur knows my exact environments."—*Pittsburgh Dispatch.*

A British Museum of Portraits.—The idea of "a British Museum of Portraits," to be executed by photography, was conceived as long ago as 1864 by Mr. James Glaisher, F.R.S., and brought before a meeting of the Council of the Amateur Photographic Association, of which the Prince of Wales is the President. The suggestion was cordially approved by the meeting, and photographs were taken in carte-de-visite size and deposited at the South Kensington Museum. At first, however, only fading silver prints were made, and these were so unsat-

isfactory that for some years the undertaking was held in abeyance. By the discovery and perfection of the process of permanent carbon printing an opportunity has at length been afforded of resuming the prosecution of the work under infinitely more favorable conditions, and as a result a collection of excellent portraits is now being made by the Amateur Photographic Association. Already there are nearly two hundred large permanent carbon portraits deposited in the Art Department at the South Kensington Museum, and about as many more are ready to be sent. These latter were on exhibition at a private view on Saturday last, at 58 Pall Mall, S. W., the studio of Mr. Arthur J. Melhuish (Photographer Royal). They embrace photographs of men of distinction in politics, art, science, letters, and the learned professions, and are excellent both as likenesses and as specimens of photographic art.—*British Journal of Photography.*

Advice to Amateur Photographers.—If oou would succeed in your experiments let everything you use be the best of its kind.

A poor camera box and a weak lens will not give good results.

Have the dark room and everything in it in perfect order.

Use great care in every part of the process. Carelessness never succeeds.

Do not be satisfied with any kind of an impression because some ignorant person has told you that you are doing splendidly.

If you are anxious to excel in photography learn to develop the negative and to print from it. Do not carry your plates to a professional to develop and print them for you. If you do, how much of the picture is of your own execution? Anybody can put a plate in a camera and expose it.

Do not attempt portraits of friends; they will find fault with them and laugh at you. Your sitter will not like his or her expression, and will say it is your fault.

Use your plates to make landscapes or views.

Do everything deliberately.

Do not neglect to dust the plate before inserting it in the slide, or the picture will be spoiled by dust-spots.

Learn to use a reliable plate and do not change.

Use one formula for a developer, and keep on doing so until you are master of it.

Master the difficulties, and don't get discouraged.—*N. Y. Morning Journal.*

On Development.—Captain Abney recommends the development of views having great contrasts with a minimum of pyro—scarcely a grain to the ounce—and ammonia, until a skeleton of an image appears. He then pours off the developer and allows the plate to be exposed to the air a few moments. During this time it gathers density. He treats it again to the developer and to air exposure until the details are all well brought out. Sometimes he devotes three-quarters of an hour to the development of one plate; then he "fixes" it, and though the negative is remarkably thin, yet it suits him, for, after it is thoroughly washed, he gives it any desired degree of density by using the cyanide of silver intensifier. In this way the dense parts of the negative harmonize perfectly with the shadows, and a plate that will give an equal and harmonious print is the result.

There still continue to be improvements made in developers. It is about two years since eikonogen was put on the market. Now comes a developer which is said to eclipse that both in name and developing power, three dozen plates being developed in one small quantity of solution. It is called the "paramidophenol developer," and is used with soda or potash as an alkali. When soda is used it is mixed as follows:

Water	1,000 c.c.
Sodium sulphite	80 grams
Sodium carbonate	40 grams
Paramidophenol	4 grams

This is said to yield very delicate negatives. When potash is used the following proportions are to be observed:

Water	1,000 c.c.
Sodium sulphite	120 grams
Potassium carbonate	40 grams
Paramidophenol	4 grams

This is equally good for negatives of a general character and positives on glass or paper. Should it become popular it is likely to be called the "para" developer, as "eiko" is for eikonogen.

PHOTOGRAPHY AND I ARE OUT.

PHOTOGRAPHY and I are out this year. Yes; after thirty years of acquaintance I have discovered that the camera will lie, and has no morals whatever. Therefore, there is no good photographic subject. Every camera I know is like Jim Fisk's description of a celebrated financier of his day: "Mostly head, the rest legs, with no bowels whatever." I have been many years in discovering the peculiar idiosyncratic antics of the average three-legged, copper-toed, wooden-headed picture boxes, and their pure cussedness is of such huge and gigantic obtrusiveness that I have "shook" amateur photography until I am through with my Sunday-school class. The ability of the ordinary camera, aided by its accessories, to spoil tempers, provoke profanity, and break up families, is only equaled by church sewing societies or a wedding invitation list. It will stand with its three legs straddled apart in the most defiant attitude, and cocking its one eye with an unblinking stare out of its empty wooden head, will seem to say: "Do what you like, Mr. Amateur; fix me as you please; put a roll in my inside, or a plate to the back of my head; I will not be exposed, if I can help it; and I will make a mess of it in spite of you; I will negative anything you can do." And how that camera will lie! Every impression it gives out represents that black is white and white is black, and until its direct statements on the film or plate are examined in private and entirely reversed in every particular, does any approach to the truth appear. The very visual impression it gives you on its ground-glass cerebellum is upside down and distorted. Whether long fo or short fo the cuss will lie anyway. The unprincipled man who wants to sell a little shell of a house in a narrow village lane, on a 25 x 50 foot lot, displays a cut of it in his advertisements, representing his little box shanty as a palatial residence fronting a 20 acre lawn on a boulevard 200 feet wide. The short fo cuss tells that lie. The doughty fisherman who has caught a half-pound trout stops at the village photographers and has it photographed hanging in front of a 6 foot gauge rod, and

in the picture that fish distinctly covers 3 feet in length. The long fo cuss tells that lie, by adjusting the space between the fish and the rod. Two neighbors go to law over the damage done by a misguided water course, and the photograph is offered as expert evidence. Lo and behold! what was really a roadside flow of rain water that a girl might step over, is here represented as a raging torrent carrying death and destruction before it. The camera tells that lie. The cuss that tells the biggest fibs is the one of the short fo kind—the one where the base of the brain at the back of his head is close up to his eye at the front. This is the phrenological sign of total depravity. Avoid it as a pestilence, and you may save some grief; but my advice would be, eschew amateur photography if you seek truth. I no longer make to myself images on ground-glass and fall down and worship them. No, no; I've been there before and know better. I prefer the serpent of brass, or the calf of gold. Along the great trunk railroads we read on every alternate barn roof and shed door the recommendation, "take Hood's sarsaparilla," and on every other alternate shed door and barn roof we are adjured to "take a camera." Now which are we to believe? If we take a dose of either it will probably put us in condition to need the other. Farewell, Mr. Editor. Perhaps some day, in my dotage, I may take up photography in my search after truth, but just now, photography and I are out.

F. F. Thompson.

The Editorial Table.

Photography's Annual, edited by Henry Sturmey and published by Iliffe & Son, at 3 St. Bride Street, London, E. C., is certainly a valuable addition to photographic literature. It contains nearly a thousand pages of interesting matter, with frequent full-page illustrations and numerous illustrative cuts and diagrams. Price, in paper covers, 2 shillings.

Die Photographie bei kunstlichem Licht. Dr. S. M. Eder, publisher. Willm. Knapp, Halle, a. S.—This is a separate edition of part of the renowned author's "Ausführliches Handbuch der Photographie," and contains detailed descriptions of various methods of lighting the subject by artificial light, mainly those with electric and magnesium light. A great variety of apparatus and lamps are attentively spoken of and illustrated with appropriate cuts. Besides portraiture, photographing of groups and interiors, reproductions by artificial light are described in detail. The book is illustrated with several engravings, copies from original flash-light photographs.

The Coming Number of "The Photographic Times Annual" promises to surpass all its predecessors, which is saying a great deal. The "Times Annual" has from its initial number been *the best and most popular of all the photographic annuals published.* The issue for 1891 will be put to press several months earlier than heretofore.—*Pacific States for July.*

Objected to the Pose.—I see that Dr. Mary Walker is about to sue a photographer because he wanted her to hold a scythe and an hour glass and pose as Father Time.—*F. P., Jr., in Brooklyn Citizen.*

Queries and Answers.

122 As a further answer to Brockton, No. 122, in your issue of 14th: "Can instantaneous picture be taken on Carbutt's Orthochromatic Plates No. 23?" Mr. Carbutt writes: "I would say yes, for seashore or ocean views; but better to use Sen. 25 or 27. In confirmation I inclose you roughly printed proofs from the negatives I took of Dixon, on Ortho. Films 27, with my Scovill hand camera and Beck lens. I would also refer Brockton to letter of Mr. John C. Hemment. on page vii, same issue, who stood on my right, and Mr. Charles Bierstadt on my left, all taking shots at 'The Only Dixon.' *All* five negatives taken with quickest speed of shutter."

129 Will you please give the simplest standard pyro developer in this week's PHOTOGRAPHIC TIMES queries? E. Decker writes in favor of pyro, but gives no proportions in his development. R. HODDER.
Gloversville, N. Y.

129 *Answer.*—One of the simplest pyro developers is that known as S. P. C. pyro soda, formula for which you will find in "American Annual of Photography" for 1891, standard formula No. 50, page 331. Or if that is not simple enough we recommend to develop with dry pyro. Take a mustard spoonful of it, dissolve in 3 ounces of water and add as much of a saturated solution of common sal soda as exigencies may demand.

130 D. J. S.—I have received from Chautauqua School of Photography a very satisfactory kalitype print made by one of the students, and want to ask a few questions about it: 1. What formula was used? 2. How is the solution put on the paper? 3. What is done to prevent the whites from turning yellow or red? 4. Can the developer be used more than once? 5. Are these fine results a rule, or are they had but occasionally?

130 *Answer.*—1. Dissolve ½ ounce of sodium ferric oxalate in 1½ ounce of water. The crystals should be green, transparent and without a yellow covering. 2. By means of a tuft of cotton. Dry quickly and without heat. 3. Should the whites be tinged yellow, work in a dilute solution of oxalic acid. 4. It cannot. 5. Failures are as liable to occur as with any other developable picture, positive or negative. Time of exposure and concentration of developer are the most important factors in the process. A 2 per cent. solution of nitrate of silver containing 1 per cent. of citric acid has given the best results so far.

"I Consider the 'Instructor' the most comprehensive book on the subject. I have now a large collection of books on photography, but none can equal it.

"*L. C. Schwerbtfeger,*
Cashier German-American National Bank,
Lincoln, Ill."

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I am constantly using the 26 inch Acme awarded to me at Minneapolis, and it works like a charm.
H. McMICHAEL, Buffalo, N. Y.

Am more than pleased with it. Without doubt it is the best burnisher in the market. It gives a beautiful polish, and never gets out of order. P. S. RYDER, Syracuse, N. Y.

Have used the Acme on all kinds of mounts, and on all kinds of printing. The tool has never failed to do its work perfectly, is easily managed, and though in constant use has never been out of order or given us any trouble. A. E. RINEHART, Denver, Col.

I take pleasure in saying the burnisher gives entire satisfaction. THE THERMOMETER IS A GREAT CONVENIENCE, preventing, as it does, against overheating and the consequent spoiling of prints It is by far the best burnisher I ever owned.
J. E. HALE, Seneca Falls, N. Y.

The burnisher is working to my entire satisfaction. I prefer it to others I have used. It heats quickly and evenly. In fact, it is a good machine all through. A. T. BARRAUD, Barrie, Ont.,
Ex-Pres. of P. A. of Canada.

We have given the new 21 inch burnisher the most severe test, and can only speak of it in the best terms. It is one inch larger than the others, and while our other took one hour to heat with full flow of gas, yours requires but eleven minutes. Also, we need not keep some one near to wipe the sweat from the machine. We have burnished unmounted prints, prints on cloth, and all thicknesses of cards on the Acme, while we always had difficulty burnishing pictures on cloth or paper on the other burnisher. We use the 21 inch Acme for our small work, and shall always recommend it as the best machine, and we will cheerfully answer all questions in regard to its working qualities. Respectfully,
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I cannot recommend it too highly. For maintaining uniformity of heat, which is absolutely necessary, the THERMOMETER is immense.
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We are using two of the Acmes, and think they are fully entitled to all you can say for them. We are practically familiar with other burnishers but use the Acme.
RANGER & CORNELL, Rochester, N. Y.

Works satisfactorily, and I like it better every time I use it. I consider it far ahead of any other burnisher I ever used.
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All you claim for it. All the name implies. Is quickly and economically heated, and with the THERMOMETER can be nicely regulated. GARDNER & FREY, Utica, N. Y.

Best of all. No SOOT, SMOKE OR SWEAT; heats quickly and gives fine polish. Simply perfect. Try it.
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I find great pleasure in using a burnisher possessing such high merits as the Acme. PHILLIP BUCHHOLZ, Springfield, Mass.

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The THERMOMETER is worth the price of the machine.
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The best I ever used; would not use any other.
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I like your burnisher very much. It is the best I ever used.
GEO. W. PORTER, Phelps, N. Y.

Am more than pleased with the Acme Burnisher, and cheerfully recommend it. D. M. THOMPSON, Kansas City, Mo.

We are pleased with the Acme.
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To see your print trimmer work is to buy it.
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Its value and convenience can be seen at a glance.
Your trimmer is indispensable in doing neat, accurate work. Saves time and gives the work a finished appearance impossible in any other way of trimming.
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In a few minutes does the work of an hour in the old way by doubling the paper and cutting many thicknesses at once.
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AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

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" OBERLIN, O., August 5, 1891.

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" *Dear Sirs:* Not long since an agent left some of the Nos. 4 and 3 Hardtmuth's retouching leads for us to try, and we find them superior to any ever used by us.

" Yours truly,

" FALOR BROS., Proprietors,

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" MESSRS. SCOVILL & ADAMS COMPANY.

" *Gentlemen:* The Triad Camera and plates received all right. Am well pleased with this most complete and ingenious multitudinous camera. Now we can gratify a desire to experiment with all manner of plates, films and rolls without the expense of a dozen cameras.

" Yours truly,

" J. R. BONHEUR."

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South Bend, Wash. The firm of Morehead & Willis is dissolved and has been succeeded by the firm of Morehead & Wainwright.

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22 x 27	1 75	2 25
25 x 30	2 00	2 50
26 x 32	2 25	3 00
30 x 40	4 50	5 50
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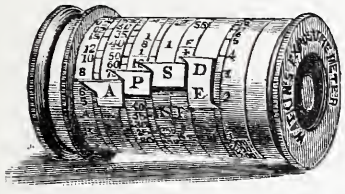
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Dear Sir: I have just developed the plates I exposed at Niagara, and they are all beautiful negatives, especially those of "Dixon." The one I took of the "Maid of the Mist" near Horse Shoe Falls is a **Gem** beyond compare; these are all on the samples of your Ortho-Portrait Plate which I obtained at the Buffalo Convention. The picture of "Dixon" on the wire cable crossing the Rapids will appear in *Frank Leslie's* in a week or two. I will send you a set of the prints as soon as possible.

Yours very truly,
JNO. C. HEMMENT,
Professional Instantaneous Sporting Photographer.

MR. JOHN CARBUTT, Philadelphia. ORANGE, N. J., July 28th, 1891.

Dear Sir: I have been using your Orthochromatic Plates (sens. 23) without **any color screen**, for various work, for over a year, and can say that they are most satisfactory in every way. Only yesterday I exposed one taken from an opened package on hand a **long time** (sens. 20), with perfect results. The emulsion number was 1694*, and I desire very much to learn from you when this lot was made. An early reply will greatly oblige,

Fraternally yours,
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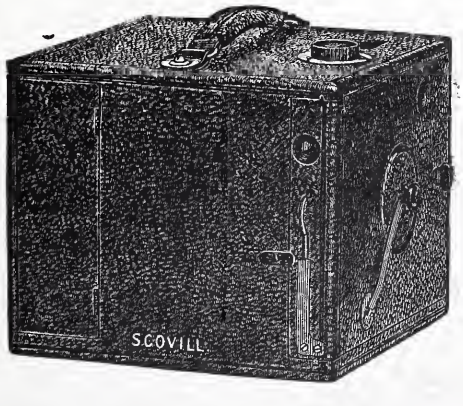
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MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size. It is

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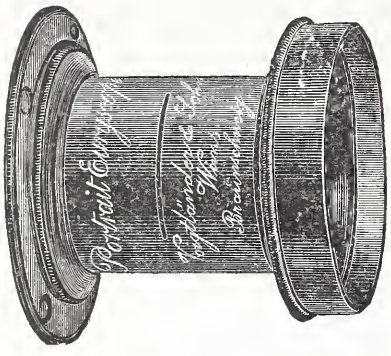
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	Leather Covered.
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
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HYATT'S

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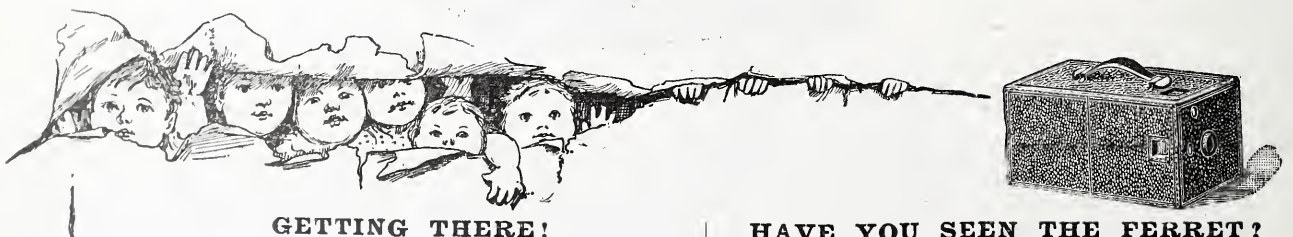
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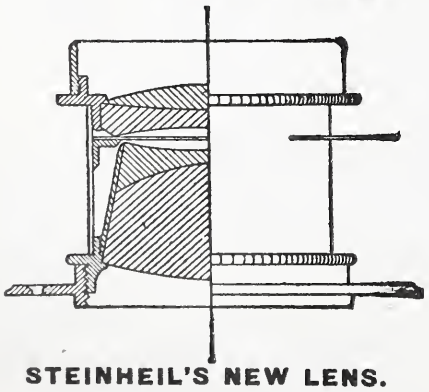
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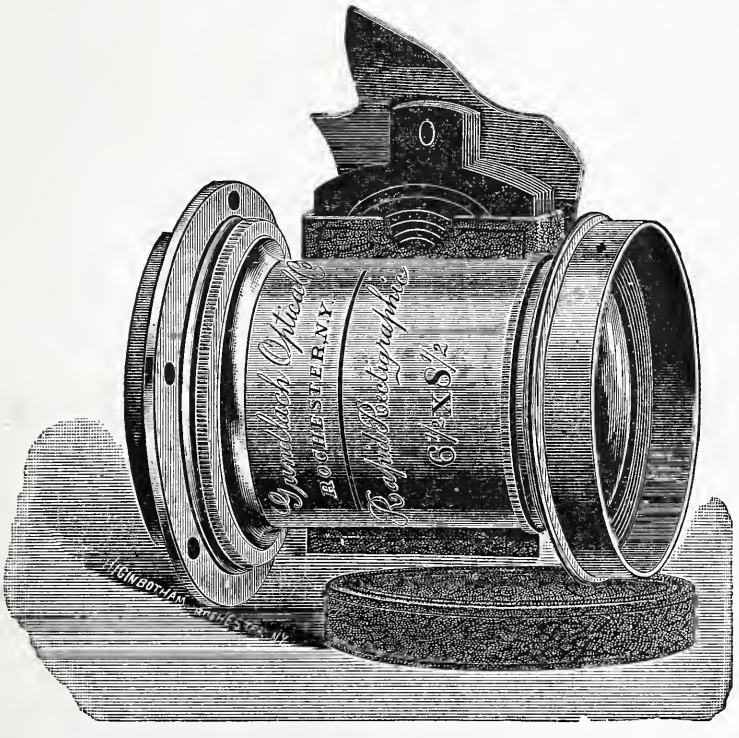
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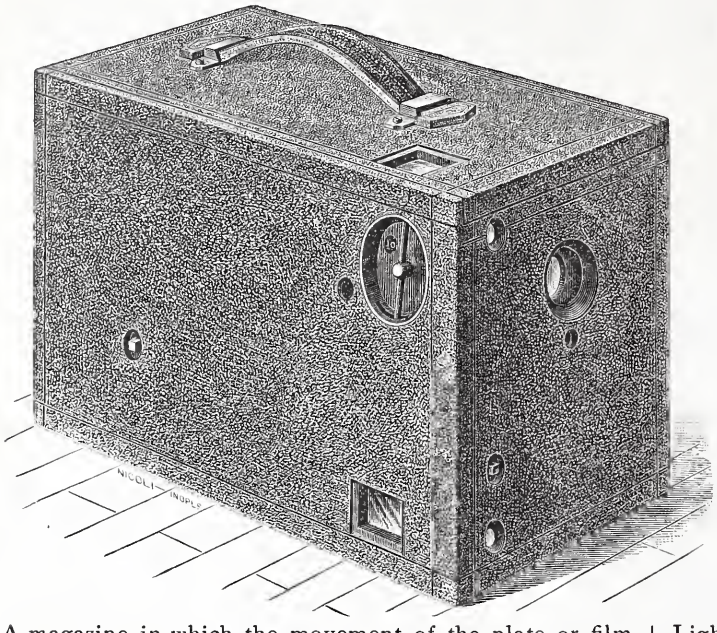
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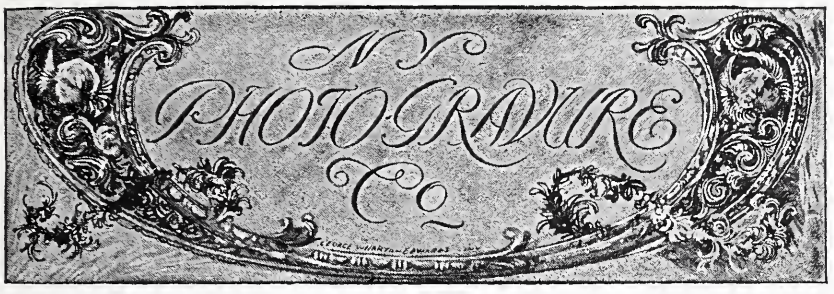
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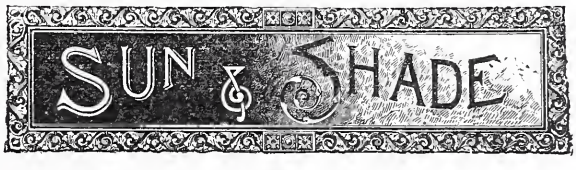
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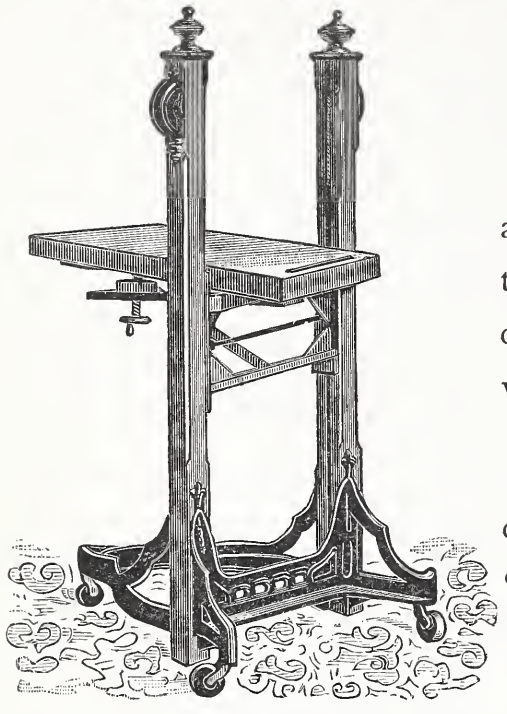
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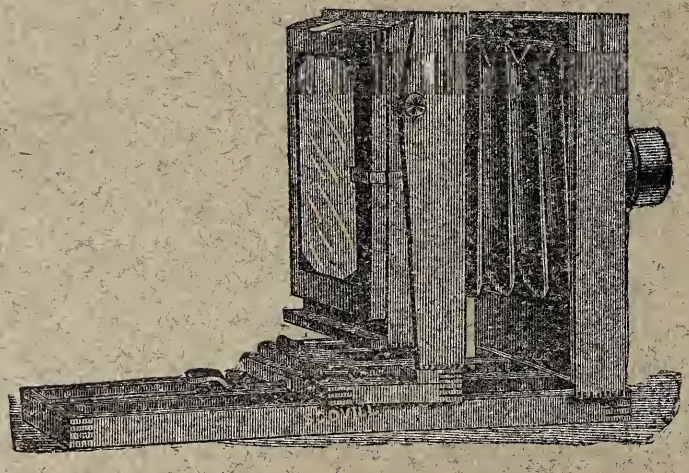
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BARONY, PHOTO. PHOTOGRAVURE CO. N.Y.

Miss Ada Rehan in "The Prayer"

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, SEPTEMBER 4, 1891. No. 520.

ADA REHAN.

OUR frontispiece this week is a striking portrait of Miss Ada Rehan, the well-known leading lady of Daly's Theater, New York. Miss Rehan is here depicted in her character in "The Prayer," a play in which she added another success to a long line of conspicuous triumphs on the dramatic stage. The negative is by that world-renowned photographer, Napoleon Sarony, of New York, and is a good example of the artistic posing which has made him famous. The strong contrasts in the picture caused by the heavy black costume of the actress were a severe test for the camera; but, reproduced in photogravure, we have a vigorous picture which is in every way satisfactory for this subject. The light background sets the figure forth with unusual plasticity. The drapery falls in heavy folds and gives breadth and solidity to the picture; but the chief charm, we think, is in the graceful, well-balanced pose of the figure.

OUR HALF-TONE ILLUSTRATION.

WE present our readers with this issue of PHOTOGRAPHIC TIMES, in addition to the high grade photogravure of Miss Ada Rehan, a specimen of Herr Adolf Türcke's method of zinc etching in half tone and high relief, printed on the ordinary type press. The sensation created by the authors' article and illustration in the "American Annual of Photography" for 1891, descriptive of the method of preparing these screens is thereby fully justified.

Of these screens we have also received samples; they are in dimension and quality, in precision, sharpness and clearness all that half tone photo-engravers can possibly demand. Being cross-lined but one exposure is needed with them, and they are easy to work with.

Herr Türcke, who has transferred his photo-chemical atelier from Berlin to Munich (see advertisement on another page), is assuredly one of the most indefatigable workers in his particular branch, and as he has promised us to send occasional specimens of his work for publication, opportunity to observe his progress is open to the public.

THE ALBUMEN PROCESS.

IV.

IN this, as in many other photographic processes, the development is perhaps the most important factor in the achievement of success. In our process there is no difficulty whatever in the operations of developing a plate, but we require, if we are to master the process, to make ourselves acquainted with the modifications which may be used to give us control over our results, for I always think that the perfection of any process or operation is *control over result.* Hence I shall enter somewhat closely into the effect of the various reagents used in proportions other than those I shall give as normal for developing a slide normally exposed from a normal negative.

As was stated in last chapter we are to have means for keeping our solutions hot. If the reader is to follow what I have to say it will be necessary for him to take the steps I suggest, at least for his first experiments; later, he can vary his practice if so minded.

The plate after exposure is first placed in distilled water at about 120 deg. Fahr., the pyro developing solution being kept at about the same temperature. As soon as the plate is well wetted and heated it is placed in a dish containing, say an ounce of the hot pyro solution to which have been added, say four drops of the acid silver solution, B (see last chapter). If the exposure has been nearly correct, a very faint image will be seen on the plate after about a minute. Supposing this to be the case the plate may be left for a minute or two longer, or it may be taken from the dish and held on a pneumatic or other holder. Possibly at this stage there

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may be seen on the plate a scum of silver; this is to be removed by rubbing with the tuft of cotton wool mentioned in last chapter. There is little fear of injuring the film by this rubbing, for the film is pretty strong. A small quantity of B, say ten drops, is now added to the pyro, and the solution is poured on to and off from the plate, always pouring back into the cup. The image will gradually gain density and also detail, and the more silver we add the more detail will appear, while the greater the heat we keep up the greater will be the density gained. It may be said that on the average the plate ought to have enough of detail and density when our ounce of developer contains about thirty minims of silver solution. Of course it is understood that when we lose some of our developer by its running over the edges of the plate, we make up the quantity by fresh additions from the hot solution A.

We must not carry the development too far, for that will give us too dense slides, with a chance of even fog in the high lights. On the other hand the slide, when development is stopped, must have a certain amount of pluck, and should in fact appear to be a good slide just a trifle on the dense side. But anyhow there must be no suspicion of blocking of the shadows, and perhaps the safest criterion is the density in the shadows It is quite easy to form a fairly accurate judgment of the state of matters, for of course the light in the operating room may be very bright compared with the light used for gelatine slide work. I use only one thickness of yellow glass, daylight being my radiant.

Whenever a scum is seen on the film it should be wiped off as above described, and when development is complete the plate should get a special rubbing and a good washing as well, for any pyro getting into the toning solution will harm the latter. The plate after this washing is placed in the toning solution, in daylight if desired, for it is quickly fixed. The toning should take from fifteen to thirty minutes; if the action is quicker than the former limit it is rarely good. The toning solution should not be used if it is very muddy, nor if it smells of acid or is acid, and of course the gold needs to be kept up if the same dose of solution is used over and over again. But it is better not to use the same dose very often; it is better to throw away into the residue tub the exhausted solution. It must be remembered that there is a danger with the *sel d'or* bath of the gold being exhausted, and the toning being due to sulphur only. After the slide has taken the desired tone it is simply well washed and dried; no varnish is needed.

We now turn as promised to consider the effect of varying the exposure and system of development.

When we require strong contrast, either on account of the nature of our negative or from the exigencies of our subject, the course is to keep down the exposure. And *vice versa*, if our negative is a hard one, or if we require results of a "soft, harmonious" kind, we naturally give an exposure in excess of the normal. And it has already been stated that silver tends to produce detail in the slide, while heat increases the density of the details already developed. If we under-expose a plate we may be able to force up detail by the use of a large quantity of silver helped by supernormal heat, but in this case not only will the slide be of a hard appearance, but the deposited image will be somewhat cold in color and will not be amenable to toning to a good, warm color. *Per contra*, if we grossly over-expose, the image will come up under development so quickly that we shall not be able to apply to the plate enough of silver to give the image pluck; the color will be a very peculiar one, and from want of deposited silver the plate will refuse to take a proper tone. These statements, which are made after very careful observation. convey to us an exceedingly useful moral, in fact they may be said to embrace the real value of this process.

If we have to deal with a weak negative, or if we wish to produce from an average negative unusually plucky results, we give a short exposure and we develop with only the necessary quantity of silver, while we raise the heat some degrees above the normal. If we persevere with development under these conditions it is quite surprising what results we may obtain from very unpromising negatives. Again, if we have a very hard negative, or if from an average negative we wish to produce results of marked softness, we give full exposure and use plenty of silver with very little heat in development. I often find it useful to coax up the details gradually by free use of silver, and having got all the detail required, I complete the density by merely adding fresh and hot pyro solution.

And yet more. Our power of modifying results does not end with the development, for after fixing and toning we can still do very much. In the first place, the density may be reduced to any desired extent after the plate is toned; this can be effected still more easily before the toning, but it is very dangerous to attempt to reduce an untoned plate with ferricyanide and hypo, because the action is very powerful on an untoned plate. I use simply Farmer's reducer—but I use it very weak. In my experience the tone of the plate is not affected at

all by this reducer. Moreover, local reduction is very easy to perform by means of a brush.

It is very easy to intensify a slide after it is fixed and toned, and for this the ordinary developing solution may be used, but it is well to use it cold for this purpose. Half an ounce of the pyro, with three or four drops of the silver will answer, the mixture being poured on and off the plate. And further, if we have by inadvertence over-toned a plate this application of acid silver pyro will restore the warm color; but of course we must take care not to pile on too much density, though, in case we do, we can reduce without spoiling the tone.

In a special manner I wish to draw attention to the case of both reducing and intensifying these plates, for these are advantages on which too much stress can not be put.

There are other ways of toning the slides; it is supposed by some that Messrs. Ferrier and Souler used some kind of process for this purpose. I have not tried many of the processes beyond the one I have given, for I have been well satisfied with the sel d'or bath. It may be mentioned, however, that the acetate bath gives good results, and I have got good tones by *very slightly* bleaching the image, especially when it is inclined to be cold, by means of weak mercury chloride, and then treating with sulphide of potash. Sulphocyanide of ammonium and gold as used for gelatine chloride printing processes give good tones also, but I find it well to reduce the strength considerably. It is further to be noted that some of the common gold toning formulas reduce the density of the slide, so that allowance must be made for this. If it were not so easy to reduce the density of a toned slide by ferricyanide I should probably use the acetate or sulphocyanide bath for such slides as ppeared too dense. But I repeat that I have found any toning bath to give results quite so uniform and good as the *sel d'or*.

I desire to express a hope that I have not been too prolific for the taste of the readers of The Times, but I have been very anxious to give a full and minute account of what I find to lead to success in my own work. I grant the tediousness of this process, but I assert its excellence as *the* process for slide-making. *Andrew Pringle.*

A Home-Made Camera Obscura.—A home-made camera obscura is fashioned by simply darkening a room and permitting no light to enter, except through a shall hole in the shutter or blind. Into this fit a double convex glass, and the images of external objects in their native colors would be seen on the wall, or on a white screen placed to receive the light from the opening. But the picture is most distinctly seen when the image is formed on the back of a silverized mirror.

PRACTICAL DEVELOPMENT.

It seems to me that there is no photographic subject that needs attention any more than the above, as on it depends the success of the picture. It is of far more moment, from my point of view, than the exposure, because with judicious development, incorrect exposure can be corrected to a great extent, provided of course the error is within the bounds of reason.

I once heard a prominent experimenter say that there was no such thing as over or under exposure. Of course this was an extravagant statement; but it conveys a good idea as to what can be accomplished by intelligent development.

I believe in a full exposure. Allow the light ample time to act on the sensitive film, for without sufficient light action, tons of chemicals can not produce a picture. Then the great advantage of a full exposure is that you gain an abundance of detail in the shadows. It has been suggested to expose for the shadows and let the lights take care of themselves, and in most cases this is a good maxim.

True it is that under-exposure is sometimes unavoidable, and in that case some developers and a different mode of applying them may to some extent help it; but I would lay more stress upon allowing an ample amount of light to act on the plate. If you do instantaneous work be careful to have a lens and plate sufficiently rapid, and you will have little trouble.

Now as to the choice of your developer: while I advocate the use of no particular formula, I would suggest that, whichever one be used, always give preference to the one with two solutions, as it gives better control of development by allowing you to regulate the proportions of the alkali. I think that all formulas are of nearly equal merit if used properly and in two solutions. I use the Chautauqua developer (pyro and potash) taken from the "Annual" for 1891, page 331, formula No. 55, and I consider it as good as any for all around use; either the above or eikonogen, prepared after any of the standard formulas, if in two solutions. I consider the choice of developers of far less importance than the manner of applying them, and while eikonogen may be somewhat more difficult to manage. It certainly has a decided advantage in that it does not discolor the hands, besides giving more detail, especially in under-exposed plates.

To begin with, I hold that the strength of the developer must be suited to the exposure, rather than the exposure suited to the developer, as the ever-changing condition of light and the varying of the time of exposures, together with the differ-

ence in the sensitiveness of plates, render it impossible to make exposures alike; therefore to follow any set rule for applying a developer of uniform strength is impracticable.

Now as to the best way to apportion our developer to suit the various exposures, for example, let us suppose a plate to be either correctly or over-exposed, and we are using the pyro developer, in either case we proceed as follows: Take the prescribed amount of water and add the pyro to it, keeping the potash separate, diluted with a little water, and add about 10 drops at a time to the pyro, each time flowing over the plate, and allowing a few minutes for it to act at each application. Continue to add the potash only until the image is well out, as you have now arrived at the proper strength; in other words, you have suited the developer to the exposure; now continue the development until the proper density is attained, but should it be slow in coming, add another dram of pyro. By these means a plate that is much over-exposed can be made to yield a brilliant negative. The above manipulations can be observed in the use of any two-solution developer, the idea being to approach the proper strength by the gradual introduction of the alkali; but in some cases of extreme over-exposure it is a good plan to introduce both the pyro and alkali by degrees, adding each as the progress of the plate may indicate.

Next let us suppose a plate to be under-exposed. In this case take 1 dram of the potash and mix with 4 ounces of water and flow over the plate and allow it to act for a few minutes. While this is doing its work, prepare the developer as described in the formula, excepting that double the amount be used. Now throw off the first bath, and without rinsing flow with the developer, and allow this to act until sufficient detail has been obtained. If successful in this add another dram of the pyro and continue development until the desired density has been attained, but if not successful in this the plate has probably been hopelessly under-exposed, but there is still a possibility of improving it by using another bath full of strength.

These manipulations may also be observed in the use of any two solution developer, the idea being in this case to first stimulate the plate with the alkali, then apply the developer proper, only in a diluted state, and finally finish with developer, full strength.

Frequently when developing a plate the sky and other strong lights appear long before the detail in the shadows, and in such a case take the plate from the bath and apply the alkaline gently with the finger on the parts that are in shadow, and plunge immediately in the bath again, being careful not to keep it from the bath long enough to make sharp lines, and repeat the operation until sufficient detail has been secured in the shadows, then continue development until sufficiently dense. In this manner the shadows can be forced independent of the high lights and amply developed without over-developing them. I have often developed a plate almost entirely by local application, as described above, with the most satisfactory results.

Inasmuch as the plate will always lose density in the fixing bath, in each and every case the development should be carried beyond the density desired in the finished negative.

W. S. Waterbury.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 429.)

CHAPTER III.

PRINTING WITH SALTS OF IRON—CYANOTYPE, AND KALLITYPE.

Herschel publishes the Cyanotype Process in 1842.—In a valuable paper entitled "On the Action of the Rays of the Solar Spectrum on Vegetable Colors, and on some new Photographic Processes," written by Sir John F. W. Herschel, and published in the *Philosophical Transactions* for the year 1842, we find the common "blue process" of the present day described under the name of *cyanotype*. The process appears to have "sprung full fledged" from Herschel's brain; for the exact method he gives will produce excellent results, and has been little varied since. It is often called the "ferro-prussiate process," from the names of the two chemicals which are employed in it.

Cyanotype in Practice.—The "blue process—or cyanotype—deserves to be more widely known and practiced than at present. It is more favored in America than in England. It is very cheap, very clean, easy to work, and the results are permanent. The blue color suits many subjects admirably. The paper to be used should be well sized, in order to keep the chemicals, as far as possible, on the surface; otherwise the picture has a dark and sunken-in appearance. Highly-sized white note-paper answers well. Or any paper can be sized by making arrowroot into starch, and sponging it over the paper to be used, which must then be dried. If ordinary albumenized (not sensitized) paper be soaked for a minute in boiling water, to coagulate the albumen, it will yield very brilliant blue prints.

Make up the following solutions:

No. 1.

Ammonio-citrate of iron.....1 ounce
Distilled water.....4 ounces

No. 2.

Red prussiate of potash.....1 ounce
Distilled water .. .. .4 ounces

These solutions must be kept in separate bottles, which should have brown paper glued round them, to protect the contents from the light

Ammonio-citrate of iron is sold at most druggists' shops as "citrate of iron and ammonia." Its chemical formula is:

$$(C_6H_5O_7)_3Fe_2(NH_4)_3$$

The red prussiate of potash is more properly named "ferrid-cyanide of potassium"—K_3FeCyl_2

Mix the solutions 1 and 2 in equal proportions in a clean glass dish, and add for each ounce of the mixture 5 drops of a 10 per cent. solution of ammonium bromide. Mix well by stirring with a glass rod. The liquid so prepared is sensitive to light, and the operation of coating the paper to be used should be done by gas-light, or in a dark corner of a room. The paper to be sensitized may be floated upon or soaked in the solution for two or three minutes; when lifted out it should be drawn over a glass rod to remove the excess of the liquid. The paper may also be laid upon a sheet of glass or a board, and the mixture applied to its surface by means of a clean sponge. In any case the paper should be dried in a dark room near the fire. The sooner it is used the better; for although cyanotype paper will keep fairly well for days, or even weeks, it never gives such bright blue tints as when just freshly prepared.

Cyanotype paper is printed beneath a negative in the usual way; it takes two or three times as long to print as ordinary silvered paper. When done, the picture can be plainly seen in brown and yellow, the shadows being bronzed. Now remove the print from the printing frame, and immerse it in water, to which a little hydrochloric (or citric) acid has been added (just enough to make it taste sour). Finally wash in five or six changes of plain water. The result should be a brilliant print in blue lines upon a white ground.

Chemistry of the Cyanotype Process.

It is easy to reduce the ferric compounds (or "per-salts of iron," as they used to be called) to the ferrous state (= "proto-salts") by chemical means alone. Thus nascent hydrogen is capable of effecting this change; converting ferric sulphate into ferrous sulphate.

$$\underset{\text{Ferric Sulphate}}{Fe_2(SO_4)_3} + \underset{\text{Hydrogen}}{H_2} = \underset{\text{Ferrous Sulphate}}{2FeSO_4} + \underset{\text{Sulphuric Acid.}}{H_2SO_4}$$

(*and* / *produce* / *and*)

Light is also capable of effecting such a change in ferric compounds; but there must be some substance present, some "sensitizer," which is capable of combining with the oxygen or other non-metallic substance given off by the ferric salt. Take ferric chloride, Fe_2Cl_6; light has no effect upon this substance when simply dissolved in water, because the water is incapable of combining with the chlorine. But when ferric chloride is dissolved in alcohol and exposed to light, the following change takes place:

$$\underset{\text{Ferric Chloride}}{Fe_2Cl_6} + \underset{\text{Alcohol}}{C_2H_9O} = \underset{\text{Ferrous Chloride}}{2FeCl_2} + \underset{\text{Aldehyde}}{C_2H_4O} + \underset{\text{Hydrochloric Acid.}}{2HCl}$$

(*and* / *produce* / *and* / *and*)

In the ordinary "ferro-prussiate paper," the paper itself and the "size" with which it is coated are able to act as sensitizers. The paper is coated with ammonio-citrate of iron (though ferric chloride and other ferric salts will answer). On exposure to light, the iron salt is reduced to a ferrous state—some of its oxygen, etc., being removed—though the precise composition of the substances formed is hardly known with certainty; but that is immaterial. The main point to remember is that light *changes* (when a suitable "sensitizer" or halogen absorber is present) *ferric salts into ferrous salts.*

The advantage of the change, photographically speaking, is this: *Ferric* salts are unaltered when mixed with red prussiate of potash; *ferrous* salts form a blue precipitate with the same substance.

$$\underset{\text{Ferrous Chloride}}{6FeCl_2} + \underset{\text{Potassium Ferridcyanide}}{4K_3FeCy_6} = \underset{\text{Ferrous Ferridcyanide}}{2Fe_3(FeCy_6)_2} + \underset{\text{Potassium chloride.}}{12KCl}$$

(+ *and* / = *produce* / + *and*)

The ferrous ferridcyanide is a fine blue solid, long known in commerce as "Turnbull's Blue," and used as a paint.

Thus light, acting through a negative upon the ferro-prussiate paper beneath, converts the ammonio-citrate of iron into a ferrous salt, more or less completely according to the relative transparency of the different parts of the negative. Under the opaque parts no change takes place. By floating upon water, the substances with which the paper is coated are all brought into solution, and they then act chemically upon one another, with the result that a picture in blue lines upon a white ground is produced in the way described above.

It is quite possible to coat the paper with the ammonio-citrate of iron only; and then, after exposure to light, to develop it by floating upon a solution of the red prussiate of potash.

W. Jerome Harrison.

(*To be continued.*)

THE RISE AND FALL OF THE DAGUERREOTYPE.

(As seen by a Country "Operator.")

V.

HAVING described the art as it was practiced when I first became acquainted with it, and having strayed somewhat from my story to make some comments upon the durability of its productions as proved by the experience of nearly half a century, it may be interesting to refer back to the opinion formerly held in regard to the permanency of the daguerreotype. It will be seen that *a priori* reasoning on that question has not been verified by experience. I will quote from a work on chemistry by a professor of this science in the University of Edinburgh:

"We are of the opinion that daguerreotype pictures are not durable. We know that they soon fade if not covered with gold, and as this stratum of gold is infinitesimally thin, it will in time oxidize off and leave the picture exposed to the air. It is not to be supposed that so delicate a fabric as one of these pictures should be durable, upon so unstable a foundation as two plates of metal, between which, so closely juxtaposed and so antagonistic in their electrical relations there is such great liability to galvanic action."

It is curious to read this prediction issued from so high a source and uttered with so much confidence as to have almost the appearance of a scientific deduction. Still more curious are the reasons given for this oracular utterance: First, the "so delicate a fabric," and second, the "so unstable a foundation." The fabric was silver, mercury, and gold, made to unite by heat, and it is doubtful that any other picture produced by photography has contained as much substance in its structure as the daguerreotype. The toning bath for example contained fifteen grains of the chloride in a quart of water, and the gold was precipitated upon the picture by heat in much greater quantity than any silver print could be made to take. I have referred to boiling these pictures in cyanide of potassium. They may also be boiled in sulphuric acid without injury—an experiment which I have often made to rid them of some scum which the cyanide would not remove. In short, the time when the gold will be oxidized off and the picture left exposed to the air seems to be yet somewhat remote. It is also interesting to note the objection raised by this renowned scientist to the unstable character of the foundation upon which the poor "daguerreotype picture" must needs rest during the brief period which would elapse before it would be deprived of its infinitesimal protection of gold by the relentless tooth of the fell destroyer, oxygen. This "unstable foundation" was no less than two plates—one of copper and one of silver, "so closely juxtaposed" as to form one plate. Strange to say, it has failed to maintain its early and perhaps premature reputation for instability.

To return to my story: While learning the first lessons in the practical knowledge of the art I was also getting together the requisite appliances for putting this acquisition into practice. What I could not obtain on credit I bought with borrowed money or manufactured. For a Daniels battery I procured a copper cup of suitable size and shape at a tinsmith's; constructed a mould of wood and paper, and cast a porous cup of plaster of Paris which proved to answer the purpose well; cast a cylinder of zinc in a sheet iron matrix, and by attaching copper wires to the cup and cylinder in the simplest manner possible it wanted only the necessary solutions to put it in complete working order. Then dissolving a sufficient quantity of silver coin in nitric acid I precipitated the chloride with common salt, which left the nitrate of copper (the alloy of the coin) in the solution. After washing the chloride with several changes of water until no blue color was visible nor became visible on adding a drop of ammonia to the water, the chloride was mixed with an excess of carbonate of sodium in a crucible, and on heating it sufficiently a button of pure silver was obtained, which being hammered out into a plate on a clean anvil it was attached to the positive pole of the battery.

A supply of hydrofluoric acid was also required. This was produced as follows:

A quantity of pulverized fluor spar (fluoride of calcium) was placed in a leaden retort; to this was added about three parts common sulphuric acid. The retort was made in two parts, the upper part fitting over the lower, and after being charged, the joint was luted with clay. The neck of the retort was fitted to that of the receiver by a ground joint and the receiver was surrounded with ice and salt or ice-cold water. Then on applying a gentle heat to the retort, which was placed in a sand bath under a flue, the acid was generated and passed over into the receiver. The acid was, of course, kept in a bottle of lead.

I also made up a small stock of chloride of gold. A piece of gold coin was dissolved in three parts of hydrochloric acid to one part of nitric acid (each of

these parts being equal in weight to the gold). The solution was then decanted from the flask, leaving the precipitated chloride of silver (from the alloy), which was washed with several changes of water, and this water added to the other solution. The copper of the alloy being in solution with the gold was separated from it by adding an excess of a saturated solution of copperas filtered and made clear by a few drops of sulphuric acid. This precipitates the gold in the form of a dark brown powder, which being also washed to free it from the copper and iron, is redissolved in the nitrohydrochloric acid as before. As the American gold coin is one-tenth alloy it is easy to determine the amount of pure gold and of pure terchloride that should be obtained from it. For example a five dollar piece weighs 129 grains. Deducting one-tenth we have 116 grains of pure gold, and this should give 178 grains of pure chloride. If now after the gold is redissolved a quantity of dried table salt equal in weight to that of the pure chloride due from the gold be dissolved and added to it the mixture will be a solution of chloride of gold and sodium, and when evaporated nearly to dryness the double salt will be in a convenient form for handling and use, and in all respects equal for use to the pure and much more deliquescent single chloride.

At the present day, if wanted for toning photographs, it is better to leave the copper and not separate it from the gold. Find how much pure chloride of gold is due from the coin, and add the salt to the first solution described above as when freed from the chloride of silver, making no account of the copper; then evaporate down as before directed. The rule for finding the chloride, the weight of pure gold being given, is as follows:

As 200, the combining weight of gold, is to 306.5, the combining weight of the terchloride, so is the weight of the gold given to that of its chloride. As in the above, 200: 306·5:: 116: 177·77.

In reality the quantity of chloride obtained is much greater. The formula gives only the weight of the anhydrous salt, and the difference between this and that obtained by the process described affords a handsome profit. I have found that 30 grains of the double salt are fully equivalent in toning power to 15 grains of the pure chloride from the most reliable houses.

W. H. Sherman.

(*To be continued.*)

It is a general complaint among photographers that in the summer time, when days are long and the light is good, people will not have their pictures taken, while in the winter, when the conditions of good photographic work are at their worst, galleries are besieged.

ADDRESS TO THE GRADUATING CLASS OF THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

[Delivered at Chautauqua on Photographers' Day.]

This is the age of beautiful pictures. They are everywhere to delight our eyes and gladden our hearts—in books, magazines, newspapers, portfolios, albums, and on the walls of our homes.

Photography has done for pictorial illustration what the art of printing did for writing. Each has helped to make beauty, truth and knowledge of universal interest and available to all. Daguerre inaugurated the democracy of art, as Guttenberg made possible the republic of letters. Books and pictures once cost so much that wealth alone could purchase them. Now they are the possession of millions.

There have been no happier people at this assembly than the men and women, boys and girls of the camera. How often we have seen your eager faces in these groves or by the lakeside, as, under the skillful instruction of your beloved teacher, you have sought by the touch of the sunbeam to make "a thing of beauty a joy forever."

Accurate marksmen, you have hit beauty on the wing. A curling wave, the flash of an oar, the smile of a child, or a flying shadow is not too fleeting for quick embalming in the amber of your negatives.

One thinks with commiseration of that maiden of antiquity, whose affection for her lover, according to ancient tradition, gave rise to the coroplastic art. Wishing to console herself for his absence, she drew his picture with a bit of charcoal while he slept, pencilling the dear face as it was reflected on the wall by a lamp. Oh, for a kodak then! But it is said this likeness was so striking that the damsel's father filled in the outline, and thus produced the first medallion.

Children think in pictures. Humanity delights in pictures. The earliest peoples had some rude method of pictorial illustration. The genius of Champollion first unfolded to us the meaning of the pictures found in the hieroglyphic language of the East. Prescott tells us that the reporters of Montezuma gave that monarch, in the beautiful pictorial language of the Aztecs, an exact account of the landing of Cortez.

The present century claims the honor of originating the greatest improvements ever devised in picture-making. We are, however, primarily indebted to the chemist Sheele, who in 1777 discovered that sunlight would affect certain chemically-prepared surfaces. Wedgwood, in 1802, produced

photographs, but neither he nor Sir Humphry Davy could prevent them from fading. Niepce and Daguerre, two Frenchmen, were the first to accomplish this.

Daguerre made known the secret in 1839. His process was, briefly, thus: He exposed to light in a camera a polished surface of silver coated with iodine, then subjected it to the action of vapor of mercury, which was precipitated upon the parts acted upon by the light. Hyposulphite of soda removed all the surplus iodide of silver, and thus made the picture permanent.

Professor J. W. Draper, of New York, was the first in this country to give us photographic portraits. During recent years an astonishing advancement has been made in the applications of this beautiful art. The dry plate and instantaneous impression now give the lover of nature opportunity to secure, not only form and shading, but motion, and have made possible to the amateur what was before attainable by the professional alone.

Photography has become the most important ally of the engraver, and in another department, photo-engraving, borrowing once more from the chemist's knowledge, secures without the engraver's skill a result which at little expense rivals the best work of a Sartain or a Ritchie. When photography shall make possible the transference of color by the sunbeam, it will produce pictures the beauty of which will defy the highest skill of the painter and prove that the sun is indeed the greatest of all artists.

When this is accomplished it will probably be done by a careful application of the law of complimentary colors and a study of the relation of surfaces to the absorption of light.

Investigation now suggests the possible identity of light and electricity, and as the *storage* of electricity is but a question of the near future, who shall say that the dream of the chemist in "Gulliver's Travels" may not be realized with a slight modification?

He was trying to extract sunbeams from cucumbers which were to be placed in phials hermetically sealed and preserved for use in raw, dark and inclement weather. The photographer armed with dry plates and stored sunshine would indeed be well equipped.

In this age of intense application to business and professional work, it is delightful to find a means of relaxation which is at the same time promotive of intelligence, health and happiness.

The amateur photographer has rare opportunities for studying the beauties of nature. He may become a close observer and discriminating in taste.

So progressive is his art that he can always be advancing in knowledge and growing more skillful in his work. There is also a delightful *corps d'esprit*, which usually inspires and binds together a great company of persons possessing similar tastes and engaged in like pursuits.

I welcome this graduating class to the goodly fellowship of the Guild of the Sun Worshipers! In conclusion, you will not fail to remember that there are *three* Rs in the photographer's vocabulary, and that while *R*adiated light is *R*efracted by our lenses, a very pleasant light may be *R*eflected from our characters. One other hint drawn from the mystic waves of the sunbeam may not be inopportune. The throbbing pulsations of ether are essentially rhythmic, and suggest the hope that you who so fully appreciate the magical order in the vibrations of light, may also enjoy sweetest harmonies in your lives.

J. T. Edwards.

ANNUAL REPORT OF THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY FOR THE SCHOOL YEAR 1890–1891.

[Read by Professor Ehrmann at the Annual Meeting of the School.]

INSTRUCTION in the theory and practice of photography has been given during the year in four classes, viz:

The Corresponding Class; the Practicing Class, at the Assembly Grounds; The Local Class, at the school's headquarters, New York; and the Post Graduate Class.

Corresponding Class is credited.....	81	students.
Practicing Class, on the Assembly Grounds.....	42	"
Local Class at New York.	12	"
Post Graduate Class.....	10	"
Total	145	

Of these 68 were females and 77 were males. The age of the students averaged from 9 to 52 years.

For professional work were trained..	7	students.
To assist in the vocation of engineers, draughtsmen, surveyors, decorators, etc.....	22	"
Physicians, clergymen, teachers....	25	"
Strictly amateur	91	"
Total	145	

The following States are now represented in the school:

New York	47	students.
Pennsylvania	19	"
Ohio	15	"
Massachusetts	9	"
Illinois	6	"
Connecticut	6	"
Colorado	5	"
New Jersey	4	"
Iowa	4	"
Michigan	3	"
Tennessee	3	"
Kansas	2	"
Vermont	2	"

And New Hampshire, Idaho, West Virginia, Wisconsin, Maine, Kentucky, Louisiana, California, Oregon, each 1.

Of foreign countries there belonged to the Corresponding Class: from Canada 5; Mexico 2; and England, India and Japan, 1 each.

The subjects of instruction in the subordinate classes were: Practical exercises in studio and field; theories according to the prescribed reading. The local class was, besides, instructed in photo-micrography, and the recovery of precious metals from waste solution.

The studies of the Post Graduate Class comprised the non-metallic bodies, photo-chemical and photo physical changes, the chemistry of silver compounds and emulsion processes.

The Exchange Club, consisting of thirty-eight members, continues to be a very useful adjunct in the instruction of students.

List of students of Chautauqua School of Photography who have creditably passed the prescribed examination and are entitled to public recognition:

Class No.	Name.	Residence.
2.	Mrs. Rachel Wheeler	Tidiout, Pa.
122.	Gould W. Hart	Brooklyn, N. Y.
156.	N. T. De Pauw	New Albany, Ind.
158.	Rev. J. R. Readinger	North Ridgeville, O.
159.	Henry E. Canfield	Akron, O.
217.	Lizzie Flocker	Alleghany City, Pa.
234.	W. A. Gamble	Cincinnati, O.
238.	Elbert Catlin	Northfield, Conn.
271.	James Beattie	Pearl Creek, N. Y.
278.	Dr. B. H. Strout	Taunton, Mass.
281.	R. H. Scadin	Dexter, Mich.
287.	S. E. Mather	Oscaloosa, Ia.
293.	Frank L. Fowler	Manistee, Mich.
299.	Rev. J. L. Fonda	Rantoul, Ill.
411.	Jenny Jackson	Boston, Mass.
416.	Miss Lilian Holloway	Aspern, Colo.
430.	Frank C. Perkins	Cornell University, N. Y.
439.	Miss Lydia Strawn	Ottawa, Ill.
448.	Mrs. M. O. Wright	Fairfield, Conn.
461.	Miss Adelaide Skeel	Newburgh, N. Y.
462.	Rev. Z. F. Griffin	Balasore, India.
463.	Miss Annie C. Taylor	Ottawa, Ontario.
469.	John H. Scheide	Titusville, Pa.
470.	Miss Alice Fichtner	Parkland, Ky.
472.	Brock Carey	Toronto, Ontario.
474.	Miss Stella Boardman	Trumansburg, N. Y.
476.	W. T. Geiser	New York, N. Y.
478.	S. T. Sherman	Warren, R. I.
479.	Charles S. Beach	Bennington, Vt.
480.	Miss Helen Smedberg	San Francisco, Cal.
483.	F. C. Green	Chihuahua, Mexico.
490.	H. M. Williamson	Denver, Colo.

And in the Advanced Class.

451.	Miss Adelaide Skeel	Newburgh, N. Y.
452.	Miss Alice Fichtner	Parkland, Ky.

ANNUAL MEETING OF THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

THE meeting was in the Children's Temple on the Chautauqua Assembly Grounds, August 20th, as announced; Rev. Dr. J. T. Edwards presided. After calling the meeting to order, Dr. Edwards delivered his address to the graduating class (see page 443). Professor Ehrmann, the instructor, then read the annual report of the school (see page 444). Dr. Edwards then presented the diplomas to the graduates, and A. M. Martin, of Pittsburgh, read the following

ADDRESS:

It is with a feeling of much more than ordinary pleasure I congratulate you upon your achievements with a beautiful and elevating art. At the risk of saying some things that may have been said often before, I cannot refrain from calling to your attention a few of the reasons why photography should be the recreation of the many, and, as I deem, the educator of all. And right here let me say that photography may have its abuses as well as its uses. I recall having read somewhere of an incident that might have occurred at Chautauqua, or elsewhere for that matter, of a young lady who had been engaged in the old time amusement of flirting with a young man photographer. The mother of the young lady called her to task, and remonstrated with her for trifling with the young man. "O, that's all right," was the reply of the young lady, "he has been teasing me nearly to death to have a negative of me, and," said she, lowering her voice, "I am going to give him one that he never, never, will forget!"

There is a modern tendency to break down the barriers largely that have been uselessly interposed between age and youth. Truth is eternal, and that which develops truth is worthy of the study of all. Photography has its mission here. It is an art from which both old and young can learn, and which comes with the same refreshing and educating power to all persons.

Wherein does it educate? To the one who has practiced photography a short time the answer is ready. Nature assumed new beauties to him. Landscapes that before were common-place reveal fascinations never before seen. The power of observation is increased, and the eye is cultivated to an appreciation of things in nature that were previously as blanks to him. Those who advocate the cause of photography often dwell upon this phase of the art, but I think not unduly so. Not only does photography

cultivate the eye but it serves often to correct the observation of those who study art from books and teachers. Did you ever try to have an artist who knows nothing of photography select a view for the camera? You will find that the tendency is for him not to take nature as it is, but to eliminate certain features from the landscape, and to bestow upon the remainder ideal characteristics which the camera shows do not exist. Back of the eye is the perception as it has been cultivated, and the person often sees, he thinks, not what is in the landscape as actually revealed to the vision, but what he believes either is or ought to be there. The artist may learn of photography; the photographer may learn of the artist. In many senses they are twin arts; in others they are not, and the sooner this is acknowledged the better for both.

Photography goes beyond intellectual and æsthetic culture. Much of life is made up of recollections. If what we recall is pleasant and helpful life is made better. Photography helps to renew ourselves by recalling many of the best things that have come to us in the past. How much is awakened by the picture of a bit of landscape, or a group of friends, as associated with some event that it is a delight to recall?

Photography educates in nearly every phase of literature. How tame is a book of travel that is not illustrated from photographs taken on the spot! Does an evil exist that needs correction, the photograph speaks eloquently in the cause of reform. "How the other half lives"—the squalor, the misery of the lower crust of society—the camera has told us more eloquently than any word painting.

During the months of July and August over twenty of the entertainments and lectures at Chautauqua have had as their main attractions the reproduction of photographs on the screen. Two thousand pictures, faithful to nature, from the midnight sun and the North Cape to the heart of the Blue Ridge mountains and the bayous of Louisiana, have delighted and instructed the largest audiences that assemble on these grounds.

Photography, when followed aright, educates along the line of the homely virtues—order, care, patience. He who seeks the best results must work in an orderly manner, have care to the little details, and patience in awaiting nature's way of doing things. Some of the grandest of life problems have their solution and richest fruition just in these observances.

Briefly then, I emphasize these phases of photography; it brings young and old together on a common ground that is equally a joy to both; it educates by revealing otherwise hidden beauties in nature; it corrects false artistic ideas; it perpetuates some of the best associations of life; it advances great reform movements; it brings to us a faithful picture of the grand, the unique and the wonderful of all parts of the globe—in fact, of the universe; and it gives its devoted followers an uplift on to a plane for the real advancement of humanity.

Finally, let us be thankful for these rich privileges that have come to us. Chautauqua has done much, and will do a great deal more. Its central inspiration has been the best of everything. May our attainments reach for this standard. We have that which is best to help us. To our beloved instructor I tender our grateful thanks for his untiring zeal in our behalf, his patience in working out the results that have been reached and that are so gratifying at Chautauqua, and the right-hand of hearty fellowship in all our relations and efforts.

Professor Ehrmann then called upon

THE CHAUTAUQUA PHOTOGRAPHIC EXCHANGE CLUB

to select officers for the ensuing year, which was done, as follows:

President, Charles Ehrmann; Secretary, Mrs. C. L. Pierce, of Riverside, Conn.; Assistant Secretary and Treasurer, Gould W. Hart, of Brooklyn, N.Y.

It was resolved:

1. Applicants for admission must present to the President three finished pictures, their own work; if below average Chautauqua quality, the application to be rejected.
2. Exchanges presented after the prescribed date to be laid over till the next exchange.
3. The annual dues of 50 cents to be paid on application for membership.
4. Notices to members to be given through THE PHOTOGRAPHIC TIMES.

The following new members were admitted:

A. M. Martin, of Pittsburgh, Pa.; Henry E. Canfield, of Akron, Ohio; John Scheide, of Titusville, Pa.; P. W. B. Wessels, of Cape Town, South Africa. Meeting adjourned.

Notes and News.

The California Camera Club gives monthly lantern slide exhibitions, at which there is usually an audience of two thousand. The exhibitions are entirely free, and interesting and instructive lectures usually accompany them.

The $10,000 Painting of Christopher Columbus, executed by the famous Moro in 1540, and purchased in London by Charles F. Gunther, has arrived at the Custom House in Chicago, and will be displayed at the Fair.

The Photographers of the Country want a separate building at the Exposition, adapted to a magnificent photographic exhibit collected from the whole world. A committee has been appointed to confer with the Exposition officials upon the subject.

R. Eickemeyer, Jr., whose photographic work is so well-known to the readers of this magazine, was a heavy loser in the fire which destroyed the Saranac Club House in the Adirondacks, on the 16th instant.

Mr. Eickemeyer and his partner were absent when the fire took place, and returned in time to find the building half consumed by the flames. Fortunately, Mr. E.'s kit of lenses and camera were saved by the guests, although his plate-holders, plates, most of his wearing apparel, and, worst of all, thirty negatives of views taken on Saranac River, Round and Upper Saranac Lakes, were lost in the flames.

The best pictures were obtained from a boat with the tripod stuck in the water—rather trying conditions we should say—and represented about two weeks' hard work.

Photographed by Lightning.—When Charles Tunnison and Ed Campbell were killed by a stroke of lightning at the ball game at Warren, O., they were sitting beneath a tree. On the chest of Tunnison, the white man, the undertaker found photographed, apparently by the flash, upon the skin the image of a branch of a tree and its twigs.—*Cincinnati Commercial Gazette.*

A Valuable Suggestion.—Amateur photography is emphatically "the style in St. Louis." Here is a valuable suggestion for that interesting class who are often in a quandary, especially when taking open-air views, as to whether they want to take this or that location, or whether the view will be all it seems to be. Glass plates being heavy to carry, and therefore not to be wasted, let the photographer take a so-called tintype first. Steel plates rolled so thin that they are no heavier than good writing paper, can be purchased in Wales—perhaps in America, now that the tin mills are running—at a cost so small that an ordinary 4 x 5 plate can be japanned and sensitized and put into a camera at a cost of less than a cent. Three hundred plates would occupy no more space in a valise than a common five-hundred page book.—*St. Louis Spectator.*

The Camera is not without its practical side. On at least one of the railroads running out of Boston, a camera is used in the legal department to take pictures of wrecks and other matters wherein a presentment of the situation can be made pictorially. A photograph tells the whole story at a glance; and not only does it save time and therefore money, but it tells the story much better than words could possibly do it. The road in question, it is stated, has saved many thousand dollars in successfully opposing claims for damages which, but for the camera with its picturesque portrayal of the situation, it would have been compelled to pay.—*Boston Transcript.*

It it not unlikely that importers of music, pictures, including etchings, photographs, etc., and a large contingent of lovers of these things who are not dealers, will unite in a protest to the Secretary of the Treasury against the ruling which instructs the customs officers to confiscate these articles when sent through the mails from foreign countries.

The ruling referred to has been in effect since July 28. Importers of such articles whom a *Times* reporter talked with said that it not only brought no revenue to the Government, but it imposed such restrictions as to amount to prohibition of importations. The situation was explained thus:

"Books imported are dutiable under a special clause in an act of long standing. Special provision, however, is made that they may be received through the mails. Other classes of printed matter subject to duty are not provided for, and under the action of the Postal Convention these dutiable goods may not be sent by mail. Consequently, an order has been issued to seize all such articles. They must come through the Custom House by the express lines."

Since this order took effect the customs department at the Post Office has been doing a rushing business. All sorts of packages have been seized and the total amount of work of this department has been increased about 100 per cent. Prior to the order the seizures numbered about two hundred and fifty a month. In the twenty days that the wholesaie confiscations have been in process the number has increased to such an extent that at the end of the first month it is estimated that the total of seizures will be about 1,700. The goods taken are to a large extent pictures, although many bundles of music have been stopped on their way to the dealers and sent the Custom House, to be redeemed, under penalties, or sold. The men interested have been powerless. Their correspondents abroad have been sending goods as of old, and confusion and loss have resulted.—*New York Times.*

Obituary.—Mr. Clarence W. Grant, a young man who, during his residence in this city (Buffalo), has made many friends, died on Sunday at the home of his employer, Mr. W. R. Haven, No. 881 Main Street. Mr. Grant was but 37 years of age, a graduate of Columbia College, taking the engineering as well as the classical course. He was a student during his subsequent years, leaving college to enter the employ of Mr. Haven. He afterwards became a member of the engineer corps of the West Shore in this city, and after a couple of years with that line went with the New York, Ontario and Western. He returned to Buffalo broken in health several years ago and re-entered Mr. Haven's employ. He was unmarried. His father is the engineer in charge of the Government Observatory at Washington, and a sister is married to Mr. J. E. Childs, general manager of the New-York, Ontario and Western. —*Buffalo Paper.*

George W. DeCamp, one of the oldest photographers in Newark, N. J., had a narrow excape from a run-away Tuesday morning, August 25th. He was violently thrown from his cab, striking his head against the curb. No internal injury was sustained, though owing to his infirm condition, serious results are anticipated.

The Annual Field Day of the Photographic Section of the American Institute has been postponed until Thursday, September 17th. It will take place that day at Fort Lee, on the Hudson. The ferry boats leave Manhattanville frequently all day, and one boat leaves New York city at Canal Street. Full particulars will be furnished later by the committee which has the arrangements in charge.

The School of Photography.—Quietly, yet none the less effectively the Chautauqua School of Photography has been doing its usual work this season. The statistics show that, amid the multiplicity of schools here, this one easily holds its own, and is making steady progress. Photography as an art, aside from its usefulness as a vocation, is coming to be better understood and appreciated. It is, in reality, an art which assists in the study and elucidation of all the other arts and sciences. The "press the button, we do the rest" have so popularized it that hundreds of thousands of persons now travel about prepared to take some sort of an impression of anything they see that is worth preserving to the sight. The Chautauqua School, however, carries its pupils beyond this primary and rather unsatisfactory stage of work. Indeed, it trains professionals and trains them well. But the larger number attending the school have been strictly amateurs; the exact figures are 91 out of 105 enrolled. Of the remainder 25 are physicians, clergymen and teachers; 22 are studying to so perfect themselves that they may be able to assist their work as engineers, draftsmen, surveyors, decorators, etc., and 7 are professional photographers. The Correspondence school in this branch has been a marked success, having had 81 students during the past year. Under the skillful direction of Dr. Ehrmann, this department has become thoroughly established in public favor.—*Chautauqua Assembly Herald.*

The Editorial Table.

We congratulate Mr. L. H. Doremus, the well-known photographer of Paterson, N. J., on being the president and manager of so profitable and prosperous a company as the Pompton Granite Company of New Jersey.

"**The Yacht Picture** in the August 21st issue by Peabody is the finest of the kind I ever saw. Its reproduction gives both the photographer and process people a big boom, and at the same time shows that THE PHOTOGRAPHIC TIMES is on deck when a master-piece is to be had," writes J. C. Hemment, the instantaneous photographer.

We are accustomed to associate the name of Rudyard Kipling with stories of Indian military life, but in his nautical story, "The Disturber of Traffic," which appears in the September *Atlantic*, he has struck an entirely new vein. The story is related by an English lighthouse keeper, who tells of the experience of another lighthouse keeper in a little-known part of the world, who, half-maddened by solitude and a certain curious optical delusion connected with the tides flowing by his light, became to an alarming extent a "disturber of traffic." Mr. Kipling has never done anything of the same kind before, and has never been more vivid and astounding than in the present story. Another short story, "An Innocent Life," is contributed by Lillie B. Chace Wyman, whose "Poverty Grass" is remembered as a collection of powerful short stories on social questions. Mr. Stockton's "House of Martha" is continued by a long instalment, and Mary Hartwell Catherwood gives us four clever chapters of "The Lady of Fort St. John." This fiction is quite fully represented in this summer issue of the *Atlantic*.

A STORY, WITH PICTURES.

I MET her in society,
A modest, fair, and queenly maiden,
I told my love most ardently,
My words with love-born passion laden,
Yet, sad to tell, she soon forgot,
For some one else stepped in and won her;
Although my suit she heeded not
I thought it honor I had done her.

And when I talked the matter o'er
With noble Dick and handsome Harry,
It seemed they even suffered more—
They vowed that never would they marry.
Myself alone I once thought blessed,
Yet Harry showed within his locket
Her miniature, and Dick confessed
He had her picture in his pocket!

THE PHOTOGRAPHIC TIMES is necessary for all who are pursuing photography as a profession or as a science.—*Boston Herald.*

Queries and Answers.

131 CARBON PRINTER.—In reply to your query we cannot do better than quote from Mr. Duchochois' new book on "Photographic Reproduction Processes."† A. Poitevin describes his process in it as follows: "I use a paper prepared with iron sesquioxide rendered sensitive to light by tartaric or, better, citric acid in concentrated solution. This paper, after desiccation and exposure to light, possesses the property of reducing the solution of silver nitrate and that of chloride of gold, and of turning blue with a solution of potassium ferricyanate in the parts where light has reduced the iron sesquichloride into the oxide at the minimum. To coat the paper with an equal layer of iron sesquioxide, I brush it with a tuft of fine linen dipped in a solution of iron perchloride at 10 or 12 per cent. of water, and dry the sheets in the dark. I immerse afterwards these sheets, one after the other, in a tray containing aqueous ammonia, in such a manner as to well wet each sheet successively. A sufficient number of sheets being immersed, I pour off the ammonia in a vial, and, in the tray, I wash them several times, and remove them one by one to hang them up to dry, even in full light, the iron sesquioxide not being sensitive to light. The paper can be prepared in quantities beforehand. To use it I apply upon each sheet a solution of citric acid at 30 or 35 per cent. of water *—which may be done by daylight—and let them dry in the dark. Exposed under a negative of the ordinary intensity, the paper is impressed in sunshine in a few minutes; in the shade it requires about the same time as chloride of silver paper. After exposure the image is not visible, and without being obliged to shelter it from light, I immerse the print in a solution containing about 1 per cent. of silver nitrate. This solution can be used over and over again, by adding to it a little of the silver salt. It does not become turbid by use; it simply turns slightly green from formation of iron nitrate. The image appears soon and rapidly becomes vigorous; in half an hour it will be completely developed. When the exposure is sufficient the color is deep sepia, but not so intense if the quantity of citric acid is feeble. No fixing is necessary; it suffices to wash in several changes of water. The image can be toned with great facility by a weak solution of gold or of platinum chloride, or, better, by a mixture of these two salts. If the impressed paper be treated by a very diluted solution of potassium ferrocyanate, one obtains very pretty blue proofs. A weak solution of gold chloride develops a violet image. A solution of platinum chloride has no effect. All the various phases of this printing method can be followed in full (diffused) light; there is only the desiccation of the paper when sensitized with citric acid, which requires to be done in the dark."

* It is advisable to add a little ammonium citrate to the solution.
† New York: The Scovill & Adams Co., Publishers.



Half-Tone Zinc Etching by Ad. Türcke, München.

After a photograph publ. by J. Joop, Hamburg.

Printed by L. Auer, Donauwörth, Germany.

DO YOU

CONSIDER

The rate of $1.56 for a full page advertisement in 1,000 copies of the great AMERICAN ANNUAL OF PHOTOGRAPHY very low? We know of nothing like it, and a straight tip.

WILL GIVE YOU

Many of the regular advertisers are calling for increased space in the forthcoming issue. We will tell you why:

BECAUSE

The '92 edition will be memorable for the list of authors who contribute, for the very attractive illustrations, and last, but by no means least, the issue of over 16,000 copies as the first edition.

WELL, NOW,

How much space do you want at the following rates: $25.00 for full page; $15.00 for half page; $10.00 for quarter page.

Kindly communicate your decision at once, and oblige

Yours truly,

The Scovill & Adams Co.,

Publishers,

423 Broome Street, NEW YORK.

TRY THE NEW

OMEGA PASTE

IT IS

THE BOSS

STICKER,

AND

DOES NOT CAKE, DISCOLOR OR BECOME SOUR.

TRY

A

SAMPLE.

PRICE LIST.

	EACH.
Half-pint jars, Omega Paste,	$0.25
Pint jars, " "	.45
Quart jars, " "	.70
Pint bottles, " "	.35
Quart bottles, " "	.55
Gallon bottles, " "	2.00

GET

FROM

DEALERS,

OR THE SCOVILL & ADAMS CO.,

NEW YORK.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year.....$5 00
" " " six months..... 2 50
" " one month's trial..... 50

Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6⅛x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion.....$20 00
Half page, per insertion..... 10 00
Quarter page, per insertion..... 5 00
Eighth " " " 2 50
Business Notices, not displayed, per line..... 20
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

THE HARVARD DRY PLATE CO.,
25 Main St., near West Boston Bridge,
CAMBRIDGE, MASS., Aug. 24th, 1891.

DEAR SIRS:—We notice that the report of the condition in which the recent fire left us has been much exaggerated in the papers, and write to inform you that we have a sufficient quantity of plates on hand to supply the immediate demand, and have already resumed operations, so that there will be no interruption to business.

We feel assured that photographers are so well acquainted with our two grades of plates—Grade 1 for ordinary work and Grade 2 for the most rapid work—that the demand will be constantly increased.

Respectfully yours,
THE HARVARD DRY PLATE CO.

THE SCOVILL & ADAMS CO.,
New York, N. Y.

FIRE NOTICE.

Office of E. I. HORSMAN,
356 Broadway,
NEW YORK, August 25th, 1891.

To the Trade:

My new store at 341 Broadway was destroyed by fire on Sunday morning, August 23d. I am now open for business at **356** Broadway (on the block above), with a new line of samples. *Orders already taken will be filled*, as I have large quantities of foreign goods in warehouses.

Hoping my friends will favor me in the future as in the past, I am, Yours truly,
E. I. HORSMAN.

181 KING ST., HAMILTON, ONT.,
AUGUST 24TH, 1891.

SCOVILL & ADAMS CO.

Gentlemen: I received my 20 x 24 American Optical Company camera from you through Messrs. J. G. Ramsey & Co., Toronto, about ten weeks ago and need not tell you how delighted I am with it. K. W. SNIDER.

Studio Changes.

Piqua, Ohio. Charles A. Gale is dead.

Portland, Oregon. The firm of Hayes & Hendee have dissolved. O. S. Hendee continues the business.

Business Notices.

FOR SALE.—Improved 5 x 7 folding Kodak, made for both Roll-holder and Plate-holders. Cost $75.00. Price, $55.00. For particulars, address C. M. BROCKWAY, 33 Worth Street, New York.

FOR SALE.—The finest gallery in the State; doing a big business; over 14,000 negatives; a bargain; price, $2,000. C. W. LOOMIS, Parksburg, W. Va.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address
J. PITCHER SPOONER,
171 Main St., Stockton, Cal.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

FOR SALE.—A Mignon Outfit, complete, consisting of a 3¼ x 4¼ "Mignon" Camera (Am. Optical Co.); 5 double plate holders, a 6-inch Wale "Universal" Lens and double-jointed adjustable tripod, canvas carrying case, etc. All in excellent condition. Just the thing for a tourist or a lady. Cost $60. Will sell for $35.
Address "MIGNON,"
PHOTOGRAPHIC TIMES Office.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
L. C. BENNETT, 423 Broome St., New York.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., Z. T. Benson, and Newcomb & Owen.
JOHN HAWORTH, Manufacturer, Phila.

ELLIOT'S MAILING TUBES.

Photographers will find these Tubes invaluable for mailing unmounted photographs, etc.

PRICE LIST, PER 1000 INCHES:

Diameter.	Light.	Medium.	Heavy.
1 inch	38 cts	$0.42	$0.54
1¼ "	44 "	.52	.63
1½ "	48 "	.62	.75
1¾ "	56 "	.70	.90
2 "	58 "	.80	1.00
2¼ "	68 "	.90	1.15
2½ "	72 "	1.05	1.25
2¾ "	78 "	1.15	1.30
3 "	82 "	1.25	1.40

These Tubes, on account of their strength, lightness in weight and uniformity, are strongly recommended for mailing and rolling purposes.

A. G. ELLIOT & CO.,
PAPER MANUFACTURERS, AND WAREHOUSE,
Nos. 30, 32 and 34 South Sixth Street,
PHILADELPHIA.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A middle-aged man, one who understands bromide printing. Address A. L. E., care of PHOTOGRAPHIC TIMES.

A first-class operator for prominent Western studio. Address F. H. H., care of PHOTOGRAPHIC TIMES.

SITUATIONS WANTED.

A young man, about 23, single, temperate, wants a position as operator and retoucher or printer in a good place. Address, Mr. S. Silvermine, Photographer, care of Messrs. B. F. Ogdens & Sons, Pittsfield, Mass.

A first-class retoucher and printer would like a position, city or country. Address Matyen, 312 18th Street, Brooklyn, N. Y.

As general assistant in a photographic studio. Ignatz Bunzel, 213 East 108th Street, New York City.

A young lady desires a situation in New York or Brooklyn as retoucher. Address L. J. E., care of George Murphy, 2 Bond Street, New York City.

A good all-round man who wishes to learn operating desires a position of any kind in a good gallery. Had experience in all branches, but would prefer position as retoucher and assistant operator. Can give good references. Reasonable salary. E. W. S., care of Pirie MacDonald, 496 Broadway, Albany, N. Y.

First-class lady retoucher on large and small work desires position. Unquestionable references. Address Miss T. Clifford, 73 Lenox Street, Boston, Mass.

A good all-around man, who wishes to learn operating, desires a position of any kind in a good gallery; had experience in all branches, but would prefer position as retoucher and assistant operator; can give good references; reasonable salary. E. W. S., care Pirie MacDonald, 496 Broadway, Albany, N. Y.

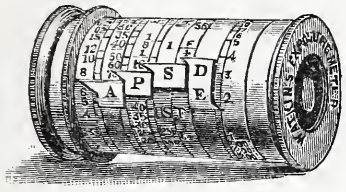
Young man, with three years' experience (wet and dry), good operator and retoucher, desires position. A. S. Green, 4517 Main Street, Frankford, Pa.

A first-class retoucher, who is able to assist in other branches, wants a position after September 1st, in only a first-class gallery. Address Retoucher, care of Mr. C. Klipstein, Druggist, Franklin Avenue, cor. 16th Street, St. Louis, Mo.

A first-class negative retoucher, capable and willing to assist under the skylight and in the dark room, is anxious to obtain employment. Address, H. C. Watton, P. O. Box 57, Shelbyville, Ills.

First-class printer and toner wishes a situation, city or country; best reference from leading houses. John Wenglein, 79 Greenpoint Avenue, Greenpoint, L. I.

By operator, retoucher and printer of many years' experience; or will go as general assistant; best of references. J. M. Manning, 44 East Third Street, New York City.



THE WATKINS EXPOSURE METER.

IN ENGLAND. *PATENTED.* IN AMERICA.

PRICE.

With one Exposure Ribbon and Book of Tables....$7 50
Extra Exposure Ribbons, each..... 25

This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. Write for testimonials and particulars—free.

For Sale by

THE SCOVILL & ADAMS CO.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,

Sole American Agents for

R. & J. BECK'S MICROSCOPES,

PHOTOGRAPHIC LENSES AND SUPPLIES.

33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*

☞ Send for our New Photographic Bargain Sheet.

CHAS. T. FELLOWS, Pres. F. A. GENTH, JR., Sec'y and Treas

The Fellows Photographic Co.,

1024 ARCH STREET, PHILADELHIA.

Freight Entrance, - - - - - - 1023 Cuthbert Street.

PHOTOGRAPHING FOR THE TRADE,
COMMERCIAL PHOTOGRAPHY,
Including photographs of Machinery, Buildings, Interiors, Articles of Commerce, etc.

LANTERN SLIDES,
STEREOSCOPIC VIEWS, Etc.,
AMATEUR WORK,
Such as Developing, Printing, etc.

RETOUCHING,
BROMIDE ENLARGING, Etc., Etc.,
Are all branches to which special attention is paid, and for the requirements of which no expense has been spared in order to perfectly equip our establishment.

☞ Write for Price-List. Mention this Journal.

F. A. GENTH, JR., Secretary.

BACKGROUNDS AND ACCESSORIES.

The FINEST and MOST COMPLETE LINE made, including everything desired.

SPECIAL DESIGNS in Backgrounds without extra charge.

Send for new books of Photographs.

J. W. BRYANT,
La Porte, Ind., U. S. A.

READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.

Three Doors East of Broadway.

PHOTOGRAPHIC MATERIALS
ZIMMERMAN BROS.
ST. PAUL MINN

MESSRS. NEWCOMB & OWEN

beg to announce to Amateur Photographers that, after four months of preparation, their

NEW ILLUSTRATED CATALOGUE

is ready to mail.

It combines extremely matter of fact and practical descriptions with an artistic daintiness never before offered to devotees of photography.

Mailed on receipt of ten cents.

NEWCOMB & OWEN,
69 West 36th St., New York.

COMMENT.

From Wilson's Magazine.

The illustrated catalogue just published by Messrs. NEWCOMB & OWEN, 69 West 36th Street, New York, is, typographically, artistically, and from a practical point of view, the finest so far issued for the convenience of photographers. Unlike almost all others, this catalogue does not present page after page of inserts supplied by the larger houses to advertise their specialties, everything in the NEWCOMB & OWEN catalogue having been selected by the experience of the firm. The best apparatus and finest quality materials only are included within its covers. It is printed upon fine glazed paper, which shows the *numerous cuts* most satisfactorily.

From the American Amateur Photographer.

From NEWCOMB & OWEN, New York, we have received an attractively gotten up catalogue of photographic supplies. We notice that they list only the best class of goods, and a number of specialties of their own manufacture. This young firm has come to the front in a way that demonstrates the value of pluck, enterprise, and square dealing.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

☞ Send at once advertisement for the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.

PHOTOGRAPHIC DIRECTORY.

F. D. Lanier Walker,
AMATEUR PHOTOGRAPHIC SUPPLIES,
18 John Street, New York City,
Successor to C. L. Littlewood & Co.

JOHN H. DALL,
618 and 620 Clay Street, San Francisco, Cal.
Photographic Supplies.
Established in 1850.

Get Your Sensitized Albumen Paper for 25 cents per Sheet,
At 59 Beekman Street, New York City.
PHOTO PRINTING AND MFG. CO.

L. M. PRINCE & BRO.,
Photographic Supplies,
148 West 4th Street,
CINCINNATI, OHIO.
Ohio Agents for Blair Cameras.

TWO NEW THINGS.
GRAVURE-TYPE PAPER,
NO TONING, NO FIXING, NO ACID BATHS,
AND
NATRAMINE DEVELOPER.
Send for Circulars to
J. F. LLOYD, 845 Sixth Ave., N. Y.

R. M. Davis.
DENVER.
The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

J. S. LOPEZ & CO.,
O'REILLY 92, APARTADO 213.
HAVANA, CUBA.
Importers of Goods for Photographers, Engravers, and Painters.
Editors of the "PHOTOGRAPHIC BULLETIN."
REFERENCES IN NEW YORK,
THE SCOVILL & ADAMS COMPANY.

HOVEY BROTHERS,
156, 158, 160 EAST MAIN STREET,
ROCHESTER, N. Y.
We sell everything photographic. Send list of goods wanted for special estimate.
RED LETTER PRICES.

THE SCOVILL & ADAMS CO.,
SUCCESSORS TO
Photographic Department, SCOVILL MANUF'G CO.,
PHOTOGRAPHIC MATERIALS.
OFFICE AND SALESROOMS:
423 BROOME ST., NEW YORK.
H. LITTLEJOHN, Secretary. W. IRVING ADAMS, President.

PHOTOGRAPHIC SUPPLIES.
TUCKER & BUTTS,
37 and 39 Court St.,
BUFFALO, N. Y.

GOVAN & CRAMPTON,
Successors to MINOTT M. GOVAN,
DEALERS IN PHOTOGRAPHIC SUPPLIES,
No. 5 Clinton Place,
(3 doors from Broadway,) NEW YORK.
Fully Illustrated Catalogue and Price List mailed on application.

CARBUTT'S
EIKO-CUM-HYDRO DEVELOPER.
For Sale by all Dealers.

R. D. GRAY,
MANUFACTURER OF PHOTOGRAPHIC
LENSES,
76 BEEKMAN STREET, NEW YORK.

JAMES S. CUMMINS,
Photographic Supplies,
106 N. Charles St., BALTIMORE, MD.
Everything in Photographic Merchandise required by the Professional and Amateur.

BIGGART SOLAR PRINTING CO.,
58 and 60 University Place, New York.
We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
SEND FOR PRICE-LIST.

"NON-COCKLE"

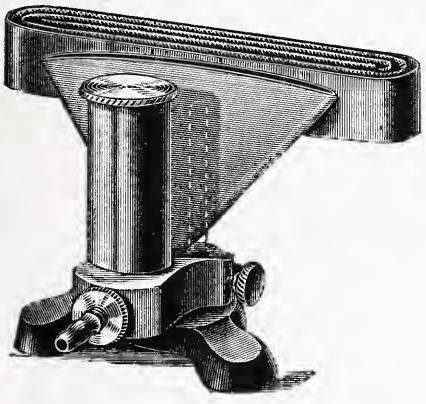


40 Cents per Bottle.

Will you examine its merits?

THE SCOVILL & ADAMS CO.,
Trade Agents.

☞ Send at once advertisement for the great **AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.**



Prosch Storage Flash Lamp.

A New Departure in Magnesium Lamps.

A Vertical Sheet Flame.

(Nearly 100 square inches surface.)

AUTOMATIC AND SURE FEEDING FROM STORAGE CHAMBER.

Complete consumption of powder—Great lessening of smoke nuisance—More light from given quantity of powder—More effective illuminant flame—Short or long flashes automatically produced—No burstable bulbs required, lung pressure sufficient—Employing compressed air, a battery of lamps can be discharged simultaneously.

The cut shows the striking features of the lamp; but as now made, wick chamber surrounds end of fan-shaped projecting tube, and is provided with a hinged safety extinguishing cap. Lamp can be held in the hand or secured at desired height to a stand rod. Substantially made of brass and finished in steel bronze or nickel plated.

PRICE, including 5 feet 3-16 tube, $5.00.

Circulars of Prosch Shutters and Flash Lamps to be had of dealers and the manufacturers

PROSCH MFG. CO., 389 Broome St., New York City.

CHEMISCHE FABRIK AUF ACTIEN

(Vorm. E. Schering) BERLIN.

E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

PYROGALLIC ACID

RESUBLIMED

From E. SCHERING,

MANUFACTURING CHEMIST, BERLIN.

E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

SEE THAT YOU GET THE "GENUINE SCHERING'S."

THE SCOVILL & ADAMS CO.,

423 Broome Street, NEW YORK.

The Scovill Squeegee and Print Roller.

Superior to anything in the Market.

The Scovill Squeegee Roller is especially designed to be used in the place of the ordinary Squeegee in working film and paper negatives, bromide prints, for removing surplus water from albumen prints before mounting, etc.

It is neatly constructed with black walnut handle, brass trimmings and a heavily covered rubber roller.

It will be found a very handy tool alike to the professional and amateur photographer.



Price, $1.00 each.

☞ Send at once advertisement for the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.

The A. M. Collins
Manufacturing Company

would call attention of Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.

Wuestner's New Eagle Dry Plates

Possess the Highest Degree of Rapidity and Finest Chemical Effect.



Are Clean, Clear, and Brilliant, Uniform and Reliable, and Easily Developed and Fixed.

In fact they are better and more uniform than any other plate that was ever made on the globe.
The leading photographers all over the United States, who are all using our plates, say they are INCOMPARABLE.

Wuestner's New Eagle Dry Plates.

JUST OUT!--Wuestner's New Orthochromatic Dry Plates.

SEND IN YOUR TRIAL ORDERS.

Office, 24 Jackson Place, **Jersey City, N. J.**

☞ Send at once advertisement for the great **AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.**

CARBUTT'S ORTHOCHROMATIC PLATES.

MR. JOHN CARBUTT, Philadelphia. BROOKLYN, N. Y., July 27th, 1891.

Dear Sir: I have just developed the plates I exposed at Niagara, and they are all beautiful negatives, especially those of "Dixon." The one I took of the "Maid of the Mist" near Horse Shoe Falls is a **Gem** beyond compare; these are all on the samples of your Ortho-Portrait Plate which I obtained at the Buffalo Convention. The picture of "Dixon" on the wire cable crossing the Rapids will appear in *Frank Leslie's* in a week or two. I will send you a set of the prints as soon as possible.

Yours very truly,
JNO. C. HEMMENT,
Professional Instantaneous Sporting Photographer.

MR. JOHN CARBUTT, Philadelphia. ORANGE, N. J., July 28th, 1891.

Dear Sir: I have been using your Orthochromatic Plates (sens. 23) without **any color screen**, for various work, for over a year, and can say that they are most satisfactory in every way. Only yesterday I exposed one taken from an opened package on hand a **long time** (sens. 20), with perfect results. The emulsion number was 1694*, and I desire very much to learn from you when this lot was made. An early reply will greatly oblige, Fraternally yours,
FRANK P. JEWETT.

* Made in July, 1888.

FOR SALE BY ALL MERCHANTS IN PHOTOGRAPHIC MATERIALS.
PRICE THE SAME AS PLAIN BROMIDE PLATES.

Manufactured by JOHN CARBUTT,
(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION,
PHILADELPHIA.

Look out
for
imitations
of

WATERBURY CARDBOARD.



Look out
for the
genuine, too,
and see
that you
get it.

It is
the Best
and Cheapest.

☞ Send at once advertisement for the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.

ESTABLISHED 1865.

JNO. G. HOOD, CHAIRMAN. WM. D. H. WILSON, TREASURER. JOS. P. CHEYNEY, SECRETARY

WILSON-HOOD-CHEYNEY COMP'Y,

(LIMITED.)

Photographic Supplies,

AND THE

ROSS LENS.

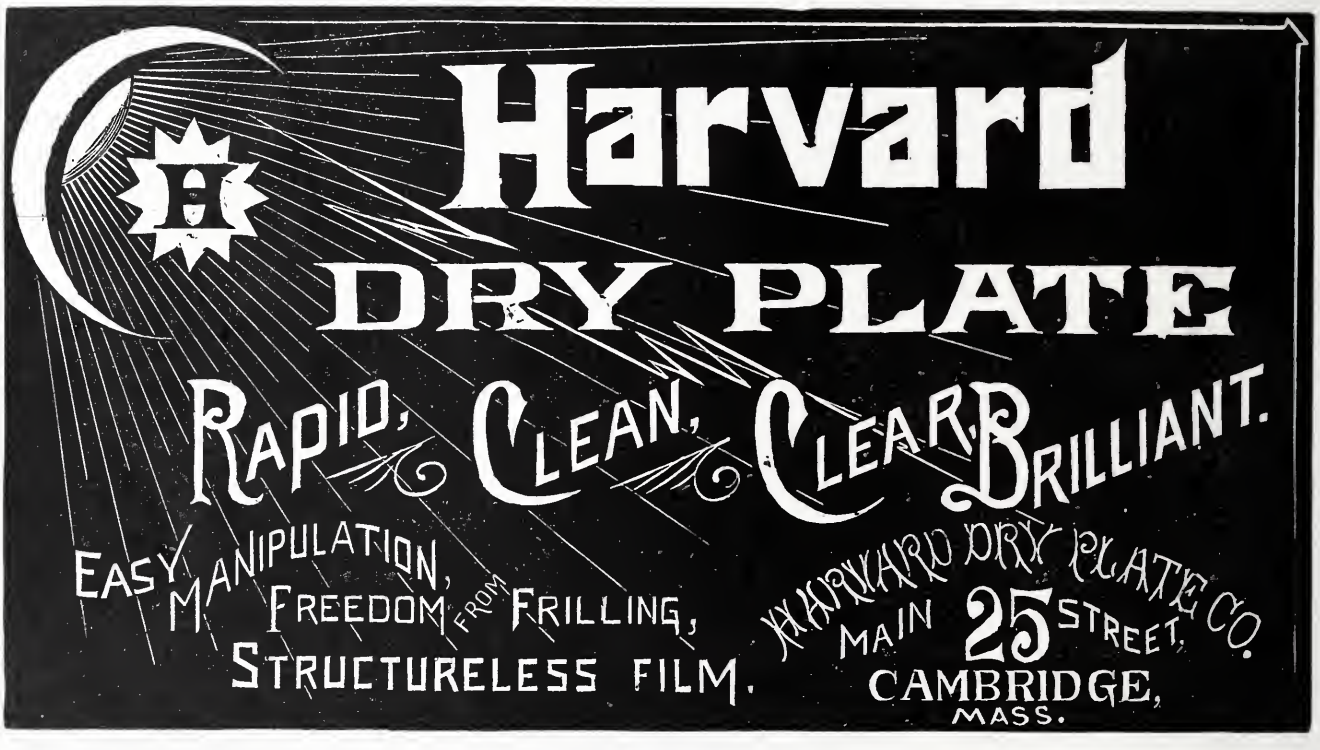
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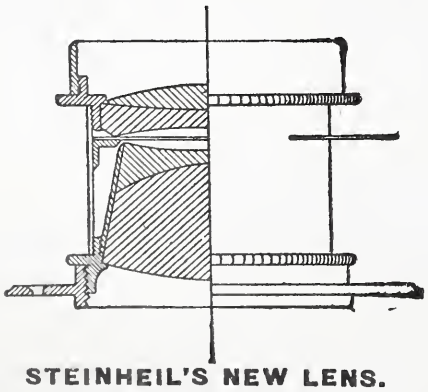
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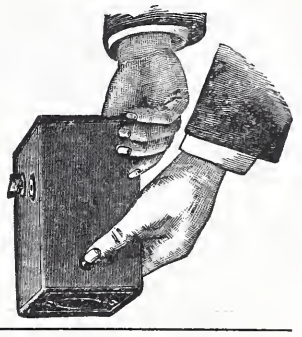
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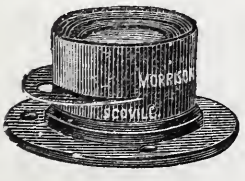
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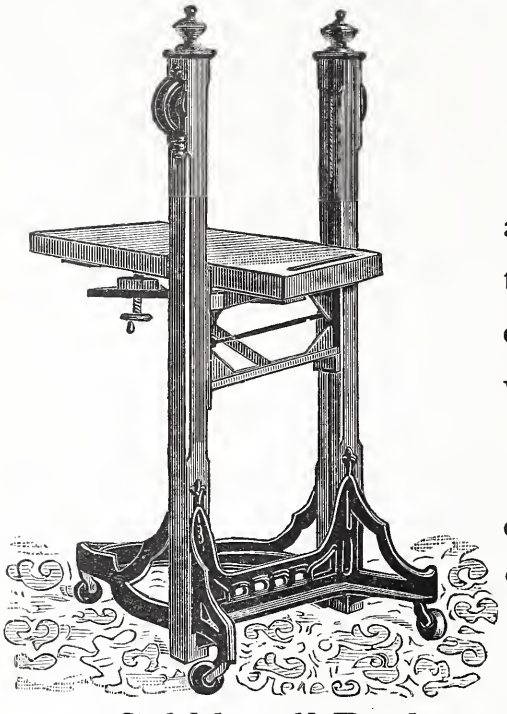
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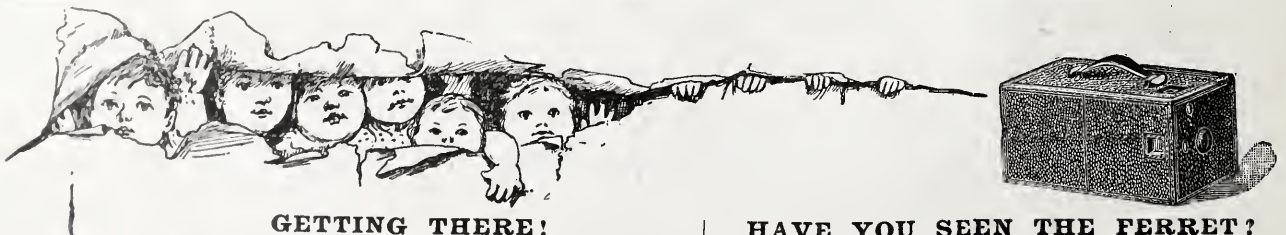
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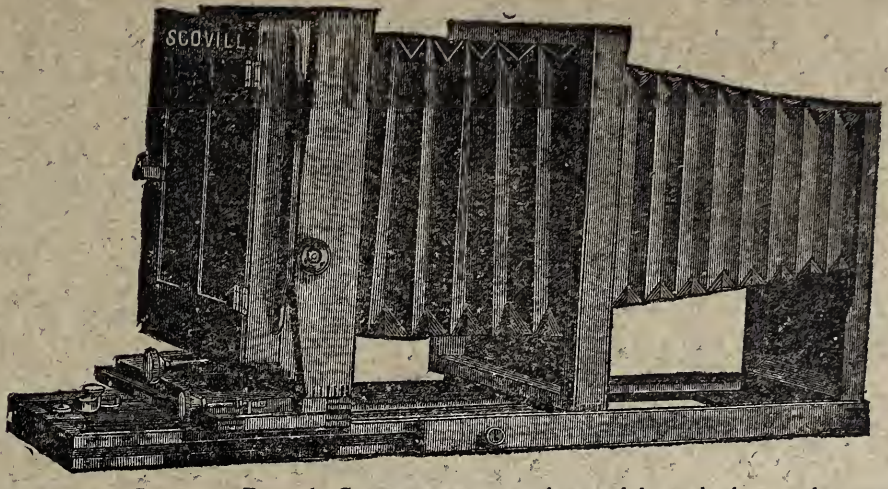
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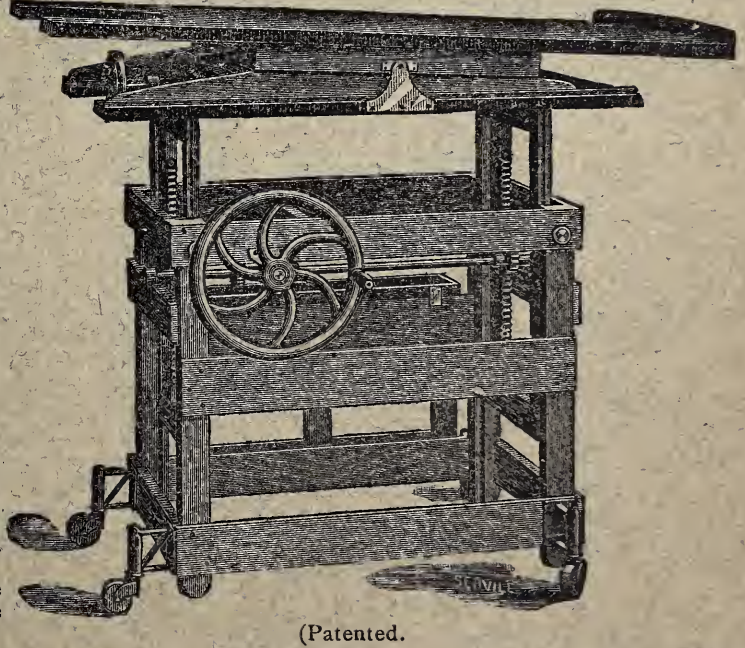
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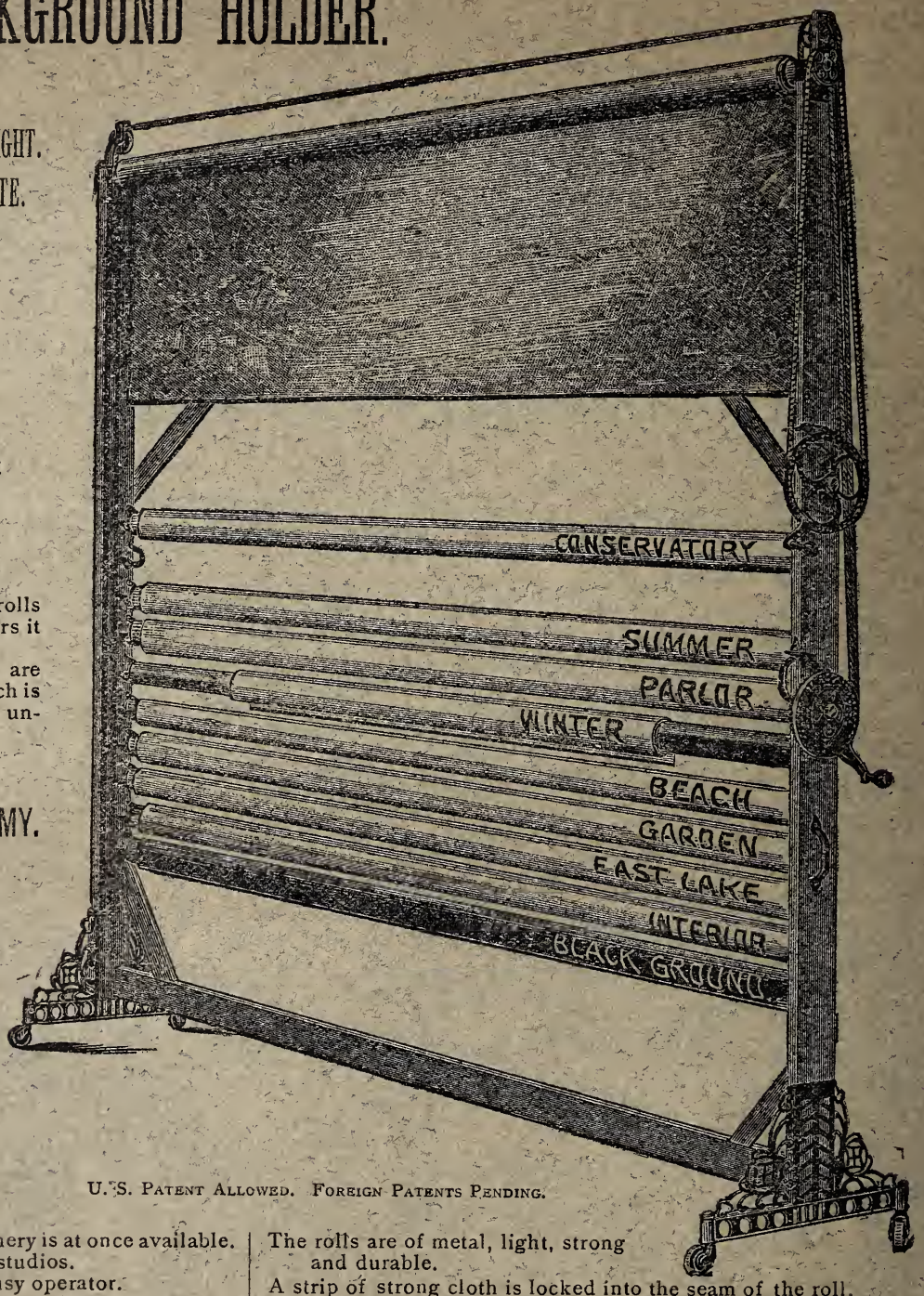
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PHOTOGRAPHIC TIMES (B.)



MISS E. J. FARNSWORTH, PHOTO.

IN THE HARVEST FIELD

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, SEPTEMER 11, 1891. No. 521.

IN THE HARVEST FIELD.

THE figure picture which adorns this number of THE TIMES is from a negative by Miss E. J. Farnsworth, an enthusiastic lady amateur photographer of unusual skill. Her art feeling is exhibited in this picture. The composition is very pleasing, reminding one strongly of Mr. H. P. Robinson's work.

It suggests "The Merry Tale" by that renowned photographer, though it is in no sense an imitation of it. The technical part of the picture has been well done, and the reproduction by the Photogravure Co. is all that could be desired. We shall hope to show our readers another example of Miss Farnsworth's artistic work.

BLISTERS ON BROMIDE PAPER AND HOW TO PREVENT THEM.

WHAT bromide printer has not been bothered with at least an occasional appearance of blisters on his prints? They do not appear on certain brands of the paper more than any other, as in the case of albumen paper, nor do they appear on every sheet or every part of a sheet when they do appear. They do not come at times of abnormal temperature, or under certain atmospheric conditions. They appear sporadically, and ten, twenty, or more bromide prints made successively may be free from blisters when the next one made shows two, three, or quite a number. They are of much larger size than those on albumen paper, and have more the character of frills on gelatine plates, especially when they first appear.

By continuous washing in water they increase in size but not in number; they seem to be the consequence of local imperfection of the material, and as their contents are not of gaseous nature, but water filtering through the tender gelatine film or the paper support, they finally burst and detach the gelatine from the paper to a considerable distance around their original limits.

The cause of these blisters must evidently be looked for not in the sheet of the prepared paper, for the blisters would not be of such rare occurrence if the cause of them lay there. Since ferrous oxalate developer has been superseded by hydrochinon and eikonogen, and since the acid hypo bath is employed for the fixing of bromide prints, and the intermediate clearing bath of acetic or citric acid has been abandoned, blisters are not so frequent as heretofore, a fact explained perhaps by the reason of acids destroying or impairing the viscosity of gelatine or its extremely feeble film on bromide paper.

Were the acid clearing bath poured upon one spot of the paper in a continuous stream for a short time only, the gelatine must assuredly yield to its action. In a similar manner would a current of water act when flowing with force upon the bromide print, and for this very reason do careful bromide printers prefer to wash in repeated changes instead of in running water. The momentum of a liquid falling upon gelatine films has a decided action, as has been often observed in the case of gelatine plates. By pouring a tiny stream of developer upon portions of the plate developing by ordinary treatment, much more details may be brought out than by leaving the plate undisturbed in the tray. Pressure promotes chemical action by disintegration of the particles of gelatine and a consequent weakening of the film; developing is then accelerated. A strong current of water flowing in the same direction upon a bromide print must necessarily have similar effects.

Thin paper, or when of comparatively loose structure, is more liable to blister than hard or when thick and solid, though the very hardest of it may bring them forth. A thin or weak spot, no matter how small, may permit water to enter, and if accidentally the gelatine covering it has been weakened, as aforesaid, a blister results.

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On albumen films we may destroy an occasional blister by perforating it; with bromide gelatine film this remedy is useless. The water may flow out after perforation, but the gelatine, continuing to swell, closes up the aperture, water flows in again as before, increasing the size of the blister as long as the print remains in water.

To prevent this expansion or forcing up of the film there is no other remedy than to harden it sufficiently to resist the pressure of water from underneath it, or to work in so low a temperature as to make the weakening of the film impossible. The amateur who prints but occasionally on bromide paper may adopt the measure without great inconvenience; but the professional who works under all possible conditions of temperature and surroundings must resort to other means. The only one he can resort to is to harden the film.

Since the acid hypo bath has been adopted for the fixing of gelatine negatives, less complaints of frilling or softening of the film are heard. It contributes much towards hardening the film, and for this reason should it be adopted for gelatine positive processes by development. The acid bath does not impair the tone of a bromide print; it clears up the whites effectively and brightens the color of the silver deposit. The intermediate clearing bath can be dispensed with if ferrous oxalate has been the developer.

But were the acid bath not effective enough to prevent blistering, the alum bath has proved to be the best preventative in most aggravated cases. To use after developing and before fixing an alum solution has, as is well known, the effect of shriveling up the film, or causing a mutual decomposition of alum and hyposulphite of soda, resulting often in an irremovable white deposit. Some have proposed to bathe the print before fixing in a solution of alum, salt and soda; but we cannot see how this mixture should prevent decomposition. Others recommend the mixture of hypo and alum to be used after all deposit formed has been thoroughly thrown down. The mixed hypo and alum bath has a great many advocates, but also many opponents, mainly because of its acid reaction, consequent to the liberation of sulphurous acid.

A far better bath is recommended by Professor Lainer. He adds a saturated solution of sulphite of sodium to a saturated solution of alum, till the whiter precipitate formed, and which dissolves in *statu nascenti*, remains slightly in excess. Adding this solution to an equal bulk of a 1 : 5 solution of hyposulphite of soda constitutes an excellent fixing and toning bath for bromide prints.

Fixing the print may proceed slower than with the ordinary or the acid hypo bath, but the alum hardens the gelatine film sufficiently to resist the action of currents of water, or that of abnormally high temperature.

MANIPULATING ROLLABLE FILMS.

IN working the rollable film I proceed as follows, and usually finish half a roll or twenty-four exposures of an evening.

The requisites are a tray of cold water to soak the films in, one tray to contain hydrochinon normal developer, and another to contain 8 ounces of a very quick-acting and powerful developer made as follows, and marked "stock" bottle *developer:*

Sulphite of soda	2 ounces
Eikonogen	100 grains
Hydrochinon	100 grains

In another vessel, which I label alkali solution stock, I put

Water	12 ounces
Sal soda	½ ounce
Carbonate potassium	¼ ounce

When all are dissolved I take 4 ounces of each and pour them into the above-mentioned tray, and mix thoroughly.

Into another tray I put an acid hypo bath for formula (see "Annual of 1891," page 172). I now wash my hands clean and dry them on a clean towel, put on my apron, light my Peerless lantern, close my dark room and begin operations by cutting off with a long-bladed scissors twenty-four exposures from the roll, I cut them off in this way: having the roll in my left hand and the shears in my right, I unwind about 6 inches of the film for a 4 x 5, and find the perforation on the edge nearest me, and I put the shears at that point, then twist the film until the farther perforation is on a line with the blade of the scissors, and with one cut, sever it clean, straight and square.

These cut films are placed one at a time face downward in the tray containing the water and allowed to soak for a few moments. They are taken from this one at a time and placed face downward into the tray containing the hydrochinon developer. I put about six in at one time. I rock the tray a little, just enough to keep them from sticking together, and I press them under the fluid with a piece of wood, being very particular to have them submerged. After a little while I take the lower ones and place them on the top and keep them moving in that way until I see the development showing through on the back of the film; then

I turn them face up, and when the details are out I remove them to the tray containing the eiko and hydro developer, there to remain until a sufficient density is arrived at, then they are to be well washed and placed face downward in the acid fixing bath. If a film has been exposed in a bad light, or under-timed from any cause, it may be put into the eiko hydro solution at the outset. For properly timed exposures, snap or time, I always use the hydrochinon developer, because it is cheap, clean, will keep well, and will give lots of time in development, bringing out all the details with good printing density, and does not require such close watching as the quicker acting reducers do.

Eiko hydro developer, as given above, is quicker than pyro, hence an over-timed negative is lost when put into it; it acts too quick for the operator to rescue it, but for under-timed, as "snap shots" often are, it is invaluable.

Leisure time during the day is a scarce luxury with me, hence I print a great deal on Star bromide paper, using ferrous oxalate when I want the best results, but eiko or hydro will give good pictures. My best tones, however, have been produced by the iron developer. I have not done much on silvered albumen paper lately—the Omega has taken its place with me. It keeps better, the results are finer. I use the one solution toning and fixing bath as given on the package, and I can guarantee twenty-three good prints out of every twenty-four every time, besides the work is so simple, clean and quick, and last but not least, no blisters or measles.

I can heartily recommend the Omega paper to all my brother amateurs as just the thing. Try it, you who have not done so. I am sure you will be well pleased with it if you follow the directions.

Thos. J. Bray.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 442.)

CHAPTER III.

The Kallitype Printing Process.

The "kallitype" process takes its name from the same two Greek words, signifying "beautiful picture," from which Fox Talbot derived the name of his "calotype" negative process, patented by him in 1841. As the two words sound very similarly, they are liable to be confounded; and it seems a pity that some more distinctive name was not chosen.

"Kallitype" was patented in 1890 by the inventor, Dr. W. W. Nicol, lecturer on chemistry at the Mason College, Birmingham, the number of the specification by 5374 (February 15, 1890).

The principle of kallitype consists in exposing to sunlight, beneath a negative, paper coated with ferric oxalate. The action of light is to reduce this substance to ferrous oxalate:

$$Fe_2(C_2O_4)_3 = Fe_2(C_2O_4)_2 + 2CO_2$$

Ferric Oxalate *produces* Ferrous Oxalate *and* Carbonic Acid Gas.

The exposed paper is then developed by floating it for fifteen seconds upon the following solution, used cold:

Nitrate of silver	50	grains
Citrate of soda	1	ounce
Bichromate of potash	1	grain
Water	10	ounces
Strong ammonia	½	dram

To prepare this developer dissolve the silver nitrate in about 1 ounce of the water, and the soda and potash in the remainder, and mix. Then add the ammonia and filter.

The chemical action of this developer can hardly be represented by equations; but it is plain that the ferrous oxide contained in the ferrous oxalate reduces the silver oxide in the silver salt to the state of metallic silver.

$$2FeO + Ag_2O = 2Ag + Fe_2O_3$$

Ferrous Oxide *and* Silver Oxide *produce* Silver *and* Ferric Oxide.

The object of the citrate of soda in this and in the washing solutions is to prevent the precipitation of the iron by the ammonia used for dissolving the silver salts.

It now only remains to wash everything out of the paper except the black metallic silver which forms the picture. This is effected by soaking the print for ten minutes in each of the following three solutions:

Washing Solution, No. 1.

Kallitype developer	½	ounce
Citrate of soda (pure, neutral)	2	ounces
Water	20	ounces

Washing Solution for Baths Nos. 2 and 3.

Citrate of soda (pure, neutral)	1	dram
Ammonia (.880)	2	drams
Water	1	quart

These two baths must always smell distinctly of ammonia.

Finally the prints are rinsed in several changes of water, and then dried.

All the solutions can be bottled, and used over and over again. The paper is sold by John Lewis & Co., Gladstone Road, Birmingham, at ten pence per sheet (26 x 20 inches); so that the process is a cheap one. It gives prints of brown or black tones, not unlike bromide paper or platinotype; and as no

hypo is employed for fixing the prints should be permanent.

The printing under the negative must be carried on until a faint brown image is visible, just showing the details under the densest parts; this only requires about ten minutes in diffused light, or two minutes in sunshine. After floating on the developing solution, it is a good plan to lay the prints, face upward, on a sheet of clean glass for a minute or two, when they will gain in brilliancy and in depth.

W. Jerome Harrison.

(*To be continued.*)

THE CYANOFER.

PELLET'S PROCESS.

[From "Photographic Reproduction Processes,"* by P. C. Duchochois.]

THIS process gives blue impressions on a white ground from positive clichés, and white impressions on a blue ground from negative clichés. It is termed "positive ferrotype process."

The cyanofer is an application of one of the numerous and useful inventions for which photography is indebted to A. Poitevin. In 1863 he discovered that certain organic substances were rendered insoluble by ferric chloride, and that they again became soluble; when under the influence of light the ferric chloride has been reduced to a ferrous salt. This curious phenomenon is the base of the process now to be described. As usual the process has been modified by compounding the sensitive solution in various ways and by minor details in the manner operating. But although these modifications have rendered the process easier to work with, there is not a great difference in the results obtained. We give two formulas. Aside from the addition of gum arabic, which was suggested by Mr. Pellet, and which constitutes the capital improvement of the process, the formula is substantially that devised by Mr. Poitevin.

Prepare three solutions as follow:

A.—Gum arabic, best quality..... 50 parts
Water.....170 parts

B.—Tartaric acid..... 12 parts
Water..... 30 parts

C.—Ferric chloride solution at 45 deg. Baumé, 35 parts in volume.

Mix gradually B to C, then C, by small quantities, in agitating briskly. It is important to prepare the solution as directed, for by adding the ferric chloride before tartaric acid, the gum arabic would be at once coagulated. When the ferric chloride is mixed, the solution at first thickens, but becomes sufficiently fluid for use in a certain period. It does not keep, and should be employed the day it is made if possible.

The paper—which should be well sized and calendered, and which, when not giving good results by too much absorbing the sensitive solution, must be starched as before directed—is coated either by brushing or by floating. By the first method a roll of paper five yards long can be prepared without great trouble, and give, perhaps, better results than if prepared by floating; but the latter method is by far the most convenient: one does not generally prepare by brushing sheets of paper larger than about 30 x 40 inches.

For brushing, the paper is pinned on a board, then, with a large badger brush dipped in the sensitive solution, the latter is applied as evenly as possible; after which, by lightly passing the brush over, the striæ are removed, the coating well equalized, and the paper hung up to dry. The coating should not be very thin, and, above all, not too thick, for then it would require an unusually long exposure to allow the light acting through the whole thickness of the film, which is a *sine qua non* to obtain a clear ground, *i. e.*, not stained blue.

To prepare by floating, pour the solution in a shallow tray, which needs not to be more than 20 x 34 inches, 30 inches being the width of the drawing paper usually employed; then roll the paper and place it on the solution. Now, taking hold of it by two corners, draw it out slowly—the paper will unroll by itself. This operation can be done by diffused daylight, but, of course, the paper should be dried in a dark room. It dries rapidly. Endless rolls are prepared by machinery. To expose, the drawing is placed in the printing frame, face downwards, and the sensitive paper laid over it. The whole is then pressed into contact by interposing a cushion between the lid of the frame and the paper, and exposed so that the rays of light fall *perpendicularly* upon it.

The cyanofer preparation is quite sensitive. From half a minute to two minutes exposure, according to the intensity of the light and the thickness of the coating, is sufficient in sunshine to reproduce a drawing made on the ordinary tracing paper. In the shade, by a clear sky, the exposure is about five times longer, and varies from half-an-hour to an hour and more in cloudy weather, but then the design is seldom perfectly sharp.

The progresses of the impression are followed by opening one side of the printing frame and examining the proof. The exposure is sufficient when the paper is tinged brown on the parts corresponding to the ground of the design. The image

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appears then negative, that is, yellowish on a tinged ground

Another and more safe method of ascertaining the correct time of exposure, which can be employed concurrently with the other, is to place a few strips of the same sheet of sensitive paper between the margin of the design, upon which a few lines have been traced, and the paper, and, without opening the frame, to draw one of them, from time to time, and dip it in the developing solution. If the whole strip be tinted blue, the proof is not sufficiently exposed; but if the lines soon appear with an intense coloration on the yellowish ground of the paper, and the latter do not turn blue in a minute, at the most, the exposure is right. By excess, the lines are with difficulty developed or broken.

For developing, we provide with three wooden trays lined with lead or gutta-percha, or, more economically, coated with yellow wax. The wax is melted, then applied very hot, and, when it is solidified and quite cold, the coating is equalized with a hot iron, whereby the cracks produced by the contraction of the wax when cooling are filled up.

One of these trays should contain a layer, about three-quarters of an inch thick, of an almost saturated solution of potassium ferrocyanate (the developer); the next be filled with water, and the third acidified by sulphuric acid in the proportion of 3 per cent. in volumes.

All this being ready, the margin of the proof is turned upward—so as to form a disk of which the outside is the impressed surface—in order that the ferrocyanate solution does not find its way on the back of the proof, which would produce stains Now the proof is laid, the lower edge first, on the developer, and gradually lowered upon it, when, taking immediately hold of it by the two corners nearest to the body, it is lifted out and held upright to allow one following the development of the image; and, presently, if any air-bubbles are seen on the proof, they should at once be touched up with a brush wetted with the ferrocyanate solution; the reason explains itself.

The image appears at once. As soon as the fine lines are well defined, the blue intense, and, especially, when the ground has a tendency to be tinged blue, the proof is placed in the tray filled with water and in this turned over two or three times, when it is immersed in the diluted sulphuric acid. In this bath the print acquires a deep blue coloration, consisting of Prussian blue, and the ground becomes tinted with a blue precipitate without adherence, which is easily washed off by throwing the liquid on the proof with a wooden spatula, or, better, by rubbing with a rag tied to a stick. When the ground is cleared, and after three or four minutes immersion, to dissolve the iron salts acted on, the proof is rinsed in water several times renewed to free it from acid, and hung up to dry.

There are two causes of failures in this process, viz., over and under exposure. In the former case the fine lines are broken or washed out in clearing the proof (which may also arise from the drawing made with an ink not opaque enough); in the latter the ground is more or less stained.

The blue stains, the lines for correction, etc., are erased with the potassic oxalate (*blue salving*, as it is termed) whose formula has been given.

The additions, corrections and writing are made with a *Prussian blue ink* prepared by mixing the two following solutions:

A. Ferric chloride, dry ..... 4 parts
Water..... .250 parts

B. Potassium ferrocyanate ..... 15 parts
Water.....250 parts

The precipitate being collected on a filter and washed until the water commences to be tinged blue, is dissolved to the proper consistency in about 400 parts of water. This ink does not corrode steel pens.

It has been stated that the cyanofer process keeps for years if preserved from the combined action of dampness and the air. The writer found in his practice that the ferric salts in presence of the organic matters (the sizes) acts as does potassium bichromate, and renders, in a certain period, the cyanofer film insoluble even after a prolonged insulation. Paper freshly prepared is always more sensitive and gives better whites and generally finer results.*

The prints can be toned black in operating as in the cyanotype, but the results are seldom good.

Captain Pizzighelli's formula is as follows : Prepare

A. Gum arabic. ..... 15 parts
Water ....100 parts

B. Ammonia ferric citrate..... ... 45 parts
Water..... .....100 parts

C. Ferric chloride..... 45 parts
Water..... .....100 parts

For sensitizing mix in order :

Solution A.....100 parts
Solution B..... 40 parts
Solution C..... 20 parts

* We have used Pellet's paper imported from Paris, which it was impossible to work satisfactorily for the reason stated.

The mixture very much thickens at first, but becomes sufficiently fluid for use in a few hours. It keeps well for two or three days. Leaving out B and replacing it by rain water, this makes also a good solution for the cyanotype.

WARM TONES ON BROMIDE PAPER.

[A communication to the London and Provincial Photographic Association.]

AFTER the able scientific communications which are made to this society, I have felt not a little nervous about bringing this matter before you; and I must tell you at once that my object in putting it forward is more *to obtain* information than on the supposition that I will be communicating anything with which the members of this society are not already acquainted.

I must also say that I am not a chemist, and that, compared with those who are listening to me, my knowledge of photographic processes is very superficial.

The methods I have adopted I cannot at all claim as my own, for they are simply the adaptation of known photographic formulas to the end I had in view.

Probably it may turn out that my procedure has been very unscientific and is chemically incorrect, but the hope I have is that my labors may not turn out to be quite useless, and that the result of these experiments may lead to the supply of a want. I trust also that the consideration you may be good enough to give to the subject to-night may correct the errors I may have made, and advance the process a stage or two beyond that to which I have been able to carry it.

I was led to undertake this work by the frequent inquiries made by brother amateurs as to whether there was any simple and reliable method by which their enlargements could be produced in tones warmer than the usual black and white of the bromide paper process. The process is not intended for contact printing, for which there are already abundant methods at our command.

Enlargements, I know, are produced in a variety of tones by the *carbon* process, but this, I understand, entails the making of enlarged negatives, and is rather beyond the average amateur, who probably wishes to make but one enlarged copy from a negative.

I do not propose to trouble you with a recital of all my experiments, but would simply mention that I made trials of different methods of mercurial intensification, and that these produced uncertain results, and gave, as a rule, tones which were not as good as those from which I started.

Darkening with ammonia or sulphite, after bleaching with mercury, gave at one time one tone, at another time another tone, and at no time a satisfactory one.

I have been informed, but I have not tested the statement, that bromide prints can be toned by bleaching them with mercury before fixing, and afterward treating them with a combined gold toning and fixing bath. I think probably my informant must have omitted to say that they would have to be redeveloped in some way first. This method would suffer under the disadvantage of having to be conducted in the weak light of the dark room, and my efforts were rather directed to finding a mode of toning the prints in the more agreeable light of my open workroom.

Some time after making my first experiments I came across the modification of the uranium intensifier, which I believe is due to Vogel, and contains the addition of acetic acid. As this intensifier imparts a red non-actinic color to negatives, it occurred to me to try it with bromide paper, and I was pleased to observe that it produced very much the effect after which I had been striving. It was not, however, all that I desired, as, although the half tones and lighter details assumed a pleasant tint, the shadows were heavy and of a blackish-brown.

This led me to try some method of producing by *development* an image of a brownish color, which, I calculated, would be more amenable to the toning process, and I adopted at first a developer of quinol, with carbonate of potash much diluted. Quinol, with caustic soda, gave a blue-black image, which was as unsuitable for toning as that produced by iron, while slow development with the formula I was using gave me a muddy brown, from which I could get the tones I desired.

It was, however, so slow as to be a greater tax on my patience than it would bear, and I don't grudge a little trouble when I can see the end before me. I turned again to hydrochinon, with caustic soda, diluting it this time with twice its bulk of water, and I found I got the same color in much less time; but I must warn you, if you don't know it, that even caustic soda with hydrochinon *doesn't* work like magic *at this* strength.

The exposure for this developer is considerably longer than for iron—a half more at least—and probably twice as much, as I think probably these toned prints turn out best when they have been developed soft. But perhaps that is only my individual taste, and a brilliantly developed

print may give a tone that might please some of you better.

Here I might mention that in my experiments I have not used the most rapid papers. A slow paper I find acts more satisfactorily, and its action under the developer when I first tried it was remarkable. The first faint image which appeared was of a delicate yellowish pink, which very slowly gained density, and assumed at last the muddy brown hue. It struck me as presenting itself very much like a chloride paper.

The developing formula I use is—

No. 1.—Hydro	180 grains
Sulphite of soda	2 ounces
Bromide of potash	30 grains
Water	20 ounces
No. 2.—Caustic soda	100 grains
Water	20 ounces

One part of each and four parts of water.

I now hand you a print developed by this formula as I have described, and which, if you desire it, I shall afterwards tone. This is the color which, as I said before, gives in my hands the best toned prints.

I also hand you a number of specimens of the toned prints. You will find these mostly, I think, in pairs; one print being of a warm brown, and the other of what I call a sepia tone; and one print you will find toned to a deep red, to show to what extent the process can be carried. The pairs, I may here say, were toned to the same color to start with, and the difference between the warm brown and the sepia is the result of less or more washing, as I will explain when I come to that part of my subject.

The prints are fixed in the usual way, having previously had a very good washing. This is very essential, as without it the fixing solution very soon gets muddy, and the prints are apt to suffer in consequence. After fixing, the washing must again be very thorough, as the slightest trace of hypo left in the prints seems to produce a red stain. Besides, it is to be remembered that it is afterward to come into contact with pot. ferridcyanide, and a decided reduction might at once be set up.

As an extra precaution, I usually pass the prints through a weak bath of peroxide of hydrogen and wash them again for fifteen minutes, and I consider I may now proceed with the toning

The operation can either be gone on with now or the prints may be dried and reserved for toning at any other time.

The toning bath consists of—

Water	8 ounces
Glacial acetic acid	90 minims
Pot. ferridcyanide	4 grains
Uranium nitrate	4 grains

This is considerably weaker than the intensifier given by Vogel, which acts much too rapidly, and is beyond control unless you are dealing only with a single print.

Even at this strength, when freshly made up, it acts very rapidly. The prints change quickly in this bath, which seems to clear away the muddiness to begin with, and the tone progresses into a brown and through various stages into the bright red, of which I handed round a specimen.

A series of prints in different tones can be arrived at in two different ways, and I have prepared two section prints to show you approximately the differences that can be produced.

No. 1 has been *toned in four sections* for from five to twenty minutes, with fifteen minutes' subsequent washing. As I will explain, this washing materially affects the final color.

No. 2 was all toned to a rather red shade of brown, and was *washed in sections* for different periods till certain shades were reached.

Section "A" of this No. 2 series has had only sufficient washing to remove the yellow stain which the toning bath produces, but not sufficient to make a reliable print I think fifteen minutes is necessary, and is probably sufficient, but I will have to deal with that part of the subject presently. By either of these means, then, you may obtain the particular color you wish, always remembering that an allowance must be made for the washing.

And this brings me now to what I said (when I first published the result of my experiment) was the weak point in the whole process; so weak a point, indeed, that it has been considered by some to make the whole thing useless. The tone we have produced can be entirely removed by prolonged washing. Sufficient washing is necessary first to remove the yellow stain and the acid, and second to arrive at the desired color; but excessive washing I hold to be quite unnecessary, and I feel satisfied that when the prints are finished and dry, they will withstand all the moisture that our pictures are usually subjected to. They won't bear tubbing every morning, or even once in a while, but neither will any of our other pictures without injury of some sort.

When prints are removed from the toning bath they are at once placed, if possible, in *running* water and closely watched. The yellow stain will be removed in four or five minutes, and the color

will gradually tone down. The section, print No. 2, shows you the rate at which the reduction takes place, the sepia stage, when starting from the red-brown, being reached in about thirty minutes.

When the shade is reached which is desired, or perhaps I should say when it has been *almost* reached, the print should be carefully and thoroughly blotted off and set aside to dry. By blotting off the reduction is checked, and you will easily see that if this is carelessly done, and some spots of water are left on the surface of the print, the result will be inequality of tone.

In producing a batch of prints which are desired to be all of one color, I wash and blot off one copy and set it at the side of my washing basin, matching the others by this one, one by one, as they reach its shade, and blotting them off in the same way. By this means the batch may be, as nearly as possible, all one shade.

This brings me to the end of my explanation, but I wish to say a few words more on the washing question. It was stated last month in a certain publication that the image could be washed away in a few hours. Now, although a certain amount of reduction of the image accompanies the reduction of tone, this is a very misleading statement. The reduction in prints toned to the sepia and brown is so slight, even if all the toning is washed out, as to be negligable. Indeed, I am inclined to think that in a certain sense, and to a certain degree, this partial reduction is a positive gain, for I have noticed throughout my trials that it has the effect of clearing and brightening up the prints, and of giving sharpness of tone, and what I think Mr. Debenham described as a separation to the shadows. For instance, in a case where the print has developed heavy, and is wanting in life, I should tone it to a rather red shade, remove all the color by prolonged washing, and *retone* to the stage desired. The result of this experiment will show that the reducing action is to some extent advantageous.

To show you how much washing the brown image will stand, I hand you a print, No. 3, which was toned to brown, and one half of it has been washed in running water for twenty-eight hours. The reduction is not great. I also show you another print in four sections, three of which have been toned to a rather *red* brown, and the remaining portion not toned at all. With this redder tone you will observe the reduction is greater, but there is very little difference, if any, between the portions which have been washed only till the tone has been removed and that which has been washed for twelve hours.

With prints toned to the brightest red the matter is quite different. The reduction is here considerable. No. 5 was continued in the toning bath for an hour after the red stage was reached, and there ceased to be any apparent change in color, and, by washing with the other (No. 4) for twelve hours, you see the image has been almost removed.

However, if the print is taken out of the toning solution *as soon as* the red is reached, the result is not nearly such a great reduction, as you will see by print No. 6. But, as I have said when writing on this subject before, those who wish this color for any purpose have only need to give it *sufficient* washing to remove the stain and acid, and I have reason to think that when dried it will withstand all the conditions of atmosphere to which our prints are usually subjected.

J. Weir Brown.

THE OLD CAMERA.

A PHOTOGRAPHIC STORY.

IT stood in the corner of my bachelor's room, and as my gaze rested upon it what a host of recollections and visions of by-gone happy days rise before me, as it stands there in the soft mellow rays thrown out by the burning logs in the opening grate, which with flickering beams throw its form out in bold relief against the dark back-ground of the wall.

I can see the cuts and marks of hard time-worn usage upon the once polished wood.

Many a time in the past have I taken it from the old canvas case and wandered along the brook, beneath the green trees, and with gentle hands placed it upon the tripod as I discovered some favorite view I loved so well. Comrades we were then, comrades now, for we shall never part again in this life.

As I watch the fire-light dance and gleam upon the old tripod, I suddenly remember that in the days long since past, that I had on the last trip I ever made with it, placed for safe keeping a small note-book, such as are kept the record of exposures in, inside the bellows, but I had forgotten the fact until now. It was recalled to my mind by discovering the edge of the book sticking out of one end of the bellows.

In my many travels the old camera was packed away in the attic where it had been for many years, and I had nearly forgotten it, when one day, not long since, returning from an extensive trip of nearly five years, I happened to discover among the folds of an old trunk, which I was unpacking at the time, an old faded photograph which recalled it to my mind.

At once I made my way to the attic, and after a half hour's search pulled it from its resting-place in one corner among a lot of other rubbish.

So long had it remained in the damp and musty room that, when I grasped the handle of the case, so time-worn had it become, it parted from the musty lid and left it in my hand.

I carefully carried the box to my room below, and removing as much of the time-worn appearance as possible, stood it in the corner where it now stands. Approaching it with gentle hands I remove the old focusing cloth, now filled with moth-holes, and pressing on the spring, I leave down the frame, which at one time held the ground glass.

Bending down I glance into the interior of the bellows, which at the present time I think would sadly fog the slowest plate made, for the light showing through the numerous pinholes make it appear as bright as the room in which it stood.

Placing my hand through the opening I remove an old and worn notebook, the writing hardly legible, so old and stained are the pages.

I hastily close the back of the camera, and going to the fire draw my easy chair up before the blaze, for it is a cold night and snowing hard without. All is silent in the room, and as I hear the snow and wind beating against the window panes, I slowly turn over the first page and with eager eyes glance upon the contents.

As the light from the fire falls upon the half-torn page and brightens up the closely written lines, I read the first two words—"A Group."

I can read no more, for a mist gathers before my eyes and my thoughts, stirred by those few short words, fly back over the pages of time and carry me once more to the old homestead Once again I remember the circumstances under which I made the picture. It was a photograph of the folks at home.

As my mind, now stirred by recollections of past events, freshen up my memory, I see once again the old vine-covered porch where in childhood I was wont to sit in the evening's twilight and watch the pale moon rise in the east above the dark blue mountains. Ah, well! time makes many changes, for few of the group are now living; the rest have been laid beneath the green woodsward, and I now am growing old.

But what will become of the old camera when I am gone? I gaze with fond eyes upon it, and as it stands there in the firelight, its one great eye seems to try and answer me.

I turn once more to the book.

As I carefully open the cover I turn over the pages until I reach the center, when, as I turn down the middle page, something flutters out and falls to the floor.

I hastily lean forward and pick it up, and as my eyes rest upon it, a cry escapes my lips, for I perceive that my hand holds a faded violet. I glance eagerly at the page and note the entry, which reads: "Subject, Mabel: Exposure——" Here the rest of the sentence was obliterated, but it was enough. The tears start afresh as once more I live over my first and only love affair. Again I see her as I did that summer day when, side by side, we strolled along the river, and she, with her sweet girlish laughter, placed herself between two trees, and I took her picture.

I can see her now with her big blue eyes and wealth of soft, brown hair, as the golden sun, slanting through the trees, lit up her sweet face and light blue dress. It made a pretty contrast between her and the dark-brown bark of the trees.

I suddenly gaze at the old camera, "yes, there it was," just as she had tied it on the afternoon when I bid her good-bye, promising to bring her the picture.

It was only a piece of blue ribbon, tied in a true-lovers knot, as my memory pictured, around one leg of the old tripod; and as my eyes fell upon it, I hear her sweet voice say, "Dick, never remove this until we are married," and as I laughingly caught her in my arms and kissed her cheek, I answered, "Never, Mabel, until the old thing falls apart."

It was our last walk together on this earth; but little we knew it then, for as we parted at the gate she said, with her face close to mine, "Remember, Dick, the blue ribbon," and as I kissed her and murmured good-bye, she turned and ran lightly up the path toward the house.

In a few short days she was taken seriously ill, and as I stood beside her bed with tears in my eyes, and watched her young life go out, she, suddenly arising, placed her arms around my neck and drawing my half-dazed head down, murmured, "Dick, don't forget your promise about the ribbon," and with a heavenly smile lighting up her pale, sweet face, she fell back into my arms in her last sleep.

They laid her beneath the elm tree on the bank of the river where in life she loved to roam, and the same day I left the old village as the sun went down, and went out into the busy world.

I have never been there since, and never want to, as I could never again have the courage to look upon the old familiar places we roamed together.

The violet I plucked from off her grave and had placed carefully away in the old note-book she had so often carried in her rambles with me. As I stand

beside the camera and think of those happy boyhood days, I hear once more the snow and wind, I turn and place my hand upon its time-worn frame, and as the dying gleams of the fire-light brighten up its familiar form I softly murmur, "Mabel, God help me, I will keep my promise."

Charles Howell Miller.

Notes and News.

Cloud Photography.—A great deal of remarkable data, which is of immense value in the preparation of weather forecasts, has lately been compiled from an investigation of cloud photographs. The range of observations extended from clouds floating less than 1½ miles high in air moving at 7 miles an hour, to 9 miles above the ground in gales blowing 65 miles an hour, while the surface wind was only a gentle breeze of 5 miles an hour.

The Jackson Portrait of William Pitt, which was purchased at the sale of Lord Ely's pictures in London for Pittsburgh, the namesake city of the great English minister, is considered an excellent likeness. But the best portrait of the man who became at twenty-three "the foremost citizen of Europe" is the picture by Hoppner, which hangs in the private apartments at Windsor Castle.—*Philadelphia Bulletin.*

A New Process of Intensification.—Herr Max Lantner, whose paper on "Who was Rembrandt?" formed one of the principal features of the last meeting of the Silesian Society, claims to have discovered and perfected a new process of intensification, which, he states, is of special value for photographing old faded manuscripts, particularly papyrus-rolls, palimpsests, and similar articles. This will probably be good news for the specialists of the British Museum and other archæologists, though we are not aware that they make as much use of photography in their researches as they possibly with advantage might. The main principle of Herr Lantner's method consists in exposing chloride paper from *both* sides under the same or exactly corresponding negative.

The Flight of Insects.—M. Marez has recently laid before the "Académie des Sciences" a paper of considerable scientific value on the flight of insects as elucidated by means of photography. The instrument employed by M. Marez was one of his own invention, and entitled by him the "Photo-chronograph." That it is an arrangement of considerable delicacy may be concluded from the fact that by its means he was enabled to obtain exposures of the insects of only $\frac{1}{2500}$ of a second in duration. The principal method employed with the insect itself was to insert him into a glass box, placed sufficiently far from the instrument. He was then encouraged to fly about the box—the rays of the sun from a heliostat concentrated upon him by a large condenser doubtless serving as an additional inducement—and exposed. As a matter of course, an objective with great depth of focus had to be employed so as to allow for variations in the creature's position.

Photographers of the Olden Time, when wet collodion reigned supreme, could often relate some curious facts, in connexion with extemporized dark rooms, such as would be utterly unavailable at the present day with dry plates. At a recent meeting of a suburban society, when the subject of discussion was dark rooms, one gentleman stated that his dark room was part of a third-class railway carriage he had purchased, the other portions being used as workshops. The idea is a capital one, as a railway carriage, although it may be too old for its original use, is still a very substantial building, and can often be purchased for a few pounds. But the unfortunate thing is that it is an unsightly thing in a back garden, of which cantankerous neighbors might complain. Furthermore, it is not every back garden into which it could be got without taking it to pieces. However, when installed, such a structure is invaluable to many others than amateur photographers. After the publicity given to the fact, "retired" railway carriages will probably be at a premium.—*British Journal of Photography.*

A New Silvering Bath.—M. Dagreve, in *Les Annales Photographiques*, suggests the following method of silvering old plated or copper articles, which may be useful to any chemist who has some old fixing baths and some worn electroplate: The articles to be plated are well washed with soap and water, and then immersed in an old fixing bath which has been used for fixing plates. In a very short time a deposit of silver forms, and then the article should be taken out, rinsed, polished with a soft leather, and again immersed till the deposited silver is thick enough. When an extra thick coating is desired, a piece of wire is affixed to the object, and at the other end of the wire a sheet of zinc, allowing one square centimeter of zinc to every square decimeter of the article to be plated. It is not advisable to use old print fixing baths for this purpose, as the silver has a peculiar yellow tinge; but chloride of silver which has not been exposed to light may be used.

Direct Positives.—At the Royal Society's soiree recently, Professor Emerson Reynolds exhibited a series of new derivatives and had a paper on the subject at the Chemical Society, on May 7th, where the photographs were also exhibited. It is tetrathiocarbamidammonium bromide $(H_4N_2CS)_4H_4NBr$, which is the most effective agent, the presence of only one-hundredth of a grain per ounce of "eikonogen" developer causing the negative image that first appears to change into a rich colored positive. The series of six small photographs show the process of reversal interrupted at different stages, so that the transition from a negative to a positive can be traced. At the Chemical Society, Mr. Groves drew attention to the curious fact that the silver deposit, which, in the early stage of development, apparently behaves like that forming an ordinary negative image, in the latter stage becomes soluble. It will be a splendid thing, says the *Chemist and Druggist*, for lantern photography if this process is perfected; but as yet it can only be considered to be in the experimental stage.

Photographs on Silk.—Those chemists who are practical photographers can well utilize silk for presenting their customers with souvenirs—satchets, almanacs, etc.—at

Christmas time. Sensitized silk can now be obtained commercially, but there is not much difficulty in preparing it. China silk we have found to be the best, and there is a great variety of ground tints to choose from. The silk must be well washed to free it from dressing, and then immersed in the following solution:

Common salt	4 grams
Arrowroot	4 grams
Acetic acid	15 cc.
Distilled water	100 cc.

The arrowroot is dissolved in the water by the aid of a gentle heat, and then the other ingredients added, and finally:

Tannin	4 grams

dissolved in

Distilled water	100 cc.

are also added, and the mixture filtered. The silk is allowed to lie in this salting bath for three minutes, hung up to dry, and afterward sensitized on a silver bath as follows:

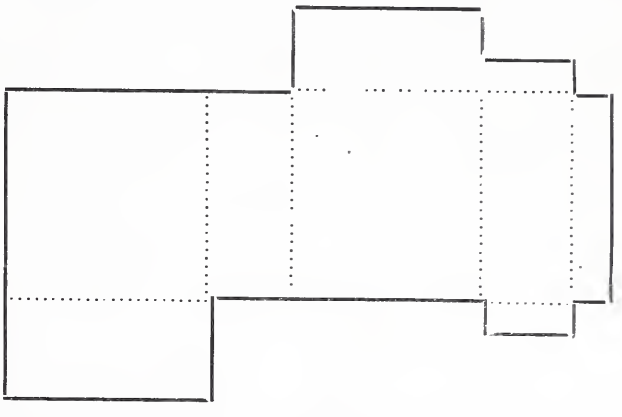
Nitrate of silver	3 grams
Distilled water	25 cc.
Nitric acid	½ drop

The silk is floated on this for one minute, then hung up till surface dry, and finally pinned out on a board till thoroughly dry. It is printed in the usual way, and washed and toned as usual, though we have found the mixed acetate and sulphocyanide bath give the best tones.—*Scientific American.*

A CHEAP HOME-MADE CAMERA CASE.

During the last few years I have made several cases to hold my different cameras, and have supplied plans and directions for constructing them to various friends and correspondents, all of whom have expressed themselves so well satisfied with the result that I think others may be glad to know how to set about the manufacture of similar cases, so, with the permission of the Editor of the *Amateur Photographer*, I will proceed to describe the *modus operandi*. That these cases are durable, light, and cheap, is proved by the following facts: My first case, which will hold a square half-plate camera and three double dark slides, was made in 1885, and has traveled many hundreds of miles with me by rail and road, and has had several journeys by itself by parcel post, and, nevertheless, it is still in use. It weighs, when empty, just under 18 ounces; its cost I cannot remember, but one made for a 12 x 10 camera this summer cost 7d. for millboard, 1s. 3d. for covering cloth, 2d. for glue, and 1s. for leather straps—or 3s. in all.

I first pack together on a table the camera and backs arranged with reference to each other, in the same position as that which I intend them to occupy in the case, so that I can obtain by measurement the necessary length, breadth, and depth of the case. I then procure a sheet of millboard, whose length is rather more than twice the depth and breadth of the case added together, and whose breadth is not less than the length of the case added to twice its breadth; thus for a case 8 inches deep, 9 inches long, and 4 inches broad, a sheet not less than 26 inches by 17 inches would be required. On it I then pencil the outline given in the diagram (which being drawn to scale will sufficiently explain itself), taking especial care to get all the right angles true. I then cut completely through the board along the continuous lines, and cut half through the thickness of the board along the dotted lines. This will allow the board to be bent along the dotted lines into the form of the case and its lid. I then get some one to hold it while I glue strips of calico or cloth along the junctions, and then glue strips of the same kind along the other edges. When the



glue is hard, the case is usable, but its appearance will be improved if it is covered. This may be done with waterproof material, or with bookbinders' cloth. It is hardly necessary to give a drawing to show the manner in which this should be cut; the thing to be aimed at is to so cut it that the joins should as far as possible be in inconspicuous places, and to allow of the edges being turned in over the edges of the millboard. The lid, if preferred, may be made entirely separate.

All that is now required is some means of carrying the case. An ordinary double rug strap and handle will answer the purpose well if it is to be carried in the hand, but, if preferred, straps can easily be arranged so that it may be carried on the back as a knapsack or slung over one shoulder.—*Rev. T. Perkins, in the Amateur Photographer.*

FOREGROUNDS.

If it is possible to form any opinion of the prevailing fault in amateur work from the number of prints we have to examine, we should say that want of care and attention to the foregrounds, and the inclusion of too great an amount of subject on the plate, are the main points of failure. It is no uncommon thing for us to have to criticise prints which have merely a central line of trees and a couple of inches of grass or otherwise unbroken expanse, which contains no interest or object to break it up.

There are few prints which are actually ready to be mounted as they come from the printing frame, few that will not be improved by a judicious use of the knife or scissors; and many a perfect picture can be made by cutting down a larger one. It is our habit, when trimming a print from one of our own negatives, to place upon the print three or four pieces of white card, and these are shifted about till the resulting print, no matter what size it is, satisfies us that the composition is more pleasing. It is quite possible, by careful selection and choice of the point of view, to obtain pictures which will require no trimming down, but, on the other hand, it is rarely that a print cannot be improved by judicious use of the knife.

Perhaps it would be arrogant on our part to lay down the dictum that the foreground is of equal importance to the background, but personally we certainly think it is. The old portrait painters considered the background one of the leading points in the picture, and we thus consider the foreground in landscape work. Of what materials to make use we cannot, of course, lay down special rules for each subject, but taking an instance of outdoor work on Monday last, we will point out how, by a simple little device, we obtained what is now a pleasing picture. The friend we were working with wanted a view of a long stretch of fields, with the Alexandra Palace in the distance; midway, the New River, and a group of boys fishing, broke up the expanse, and on the opposite side a group of two or three horses and a young foal, resting in the shade of some fine elms, gave quite sufficient interest. On the other side, however, we had an expanse of grass, unbroken by any object of interest—all was plain unbroken grass. Now, by shifting the camera about half an inch round, and by a little exertion, we managed to haul a big iron horse roller just into the foreground; this was quite sufficient to break up the grass and throw the distance back into its proper place. Thus in almost every view we may find some object to relieve the foreground.

Much may be learned from the works of such masters as Robinson, Gale, etc., and we can do no better than draw our reader's attention to the following extract from "Pictorial Effect in Photography," by the first of the above-named masters: "How often do photographers travel over miles of country without finding anything they consider worthy of their attention, although, perhaps, exquisite subjects may exist at every turn of the road. The art of photography has arrived at a sufficient state of perfection in its own way to prevent us having any fear in acknowledging that it is not possessed of unlimited power, that the sublime cannot be reached by it, and that its power is greatest when it attempts the simplest things. But if it is not the mountain that it can represent best, what art can equal it in its representation of the molehill? And for this reason I conclude my hints on landscape with an illustration of the class of simple subjects for the representation of which the art is pre-eminent. The illustration will show how a basket, a stone, a log of wood, a barrel—all or any of these—may be made valuable when a foreground presents nothing of special interest in itself, and how, by their presence, they at once give tenderness to the distance and space to the picture."—*The Amateur Photographer.*

"**Practical Photo-Micrography,**" by Andrew Pringle. "We take great pleasure in recommending this work to our readers, and trust they will profit by its pages."—*Meyer Brothers' Druggist.*

A Curious Photograph, of which very few copies can now be found, was reproduced in the *Brooklyn Eagle.* Thirty years ago more members of the Beecher family than ever met before or after, at least in their maturity, gathered on Columbia Heights at the house of the pastor of Plymouth Church. Naturally enough, one day they stood up and had themselves "taken." The group is a study in comparison and contrast, in resemblance and difference. It is a pity that the conversation during the reunion could not have been stenographically reported.

THE PHOTOGRAPHER'S JOY.

If he falls upon the ice
His delight he can not hide,
Yes, he thinks it's something nice,
He's accustomed to a *slide.*

Queries and Answers.

132 "A SUBSCRIBER" from Philadelphia writes us a lengthy communication for information as to how to accomplish the impossible. He wants to know how extended landscapes may be photographed so that they will appear just as well in the finished print as they do in nature. We are sorry to say that photographic objectives are not yet made in the perfection which makes such a thing possible. Our subscriber must be satisfied with less extended views.

133 H. L. I. writes: "I notice in the issue of THE PHOTOGRAPHIC TIMES of August 7th, a one solution formula of 'paramidophenol.' Please inform me where I can obtain a sample, enough for making, say, 32 ounces of developer, as I am desirous to comparing it with a mixed developer I am using now, of eikonogen and hydrochinon, equal parts. Can you give me a formula for making up this new developer in two solutions?"

133 *Answer.*—Paramidophenol has not yet come to this country. Apply to Dr. Theodor Schuchardt, Goerlitz, Germany.

134 KARL MAXTER.—In reply to your letter let us explain that Omega paper is coated with chloride of silver gelatine emulsion. Gelatine being of hygroscopic nature, the paper should be kept in absolutely dry places. After having absorbed moisture and when kept under pressure and in close contact with the negative the paper will naturally stick. Moist Omega paper when kept for a long time in that state refuses to tone. Our correspondent does not say what toning bath he uses, else we might be able to explain more minutely.

135 J. R. B. writes: I have a copy of February number PHOTOGRAPHIC TIMES which tells of cure of consumption by vapors of daguerreotype bath in dark room. I wish to try the vapors of which the TIMES speaks. What will it cost to have you put me up a mixture containing all the ingredients of the daguerreotype developer?

135 *Answer.*—Any apothecary can prepare these vapor baths at a trifling cost. Take a wide-mouthed bottle or glass jar (the S. P. C. parlor paste jars will do very well) and put in alternate layers of cotton batting, upon each of which sprinkle a sublimed iodine. Close the lid and keep in a moderately warm place. Secondly, put in a similar jar slaked lime, and add to it gradually from 30 to 40 drops of pure bromine; shake well after every addition, and when thoroughly mixed close the lid. When you wish to inhale the vapors, place both jars in close proximity to each other, and open the lids. The iodine and bromine vapors arising should be sufficiently diluted with atmospheric air not to irritate the breathing organs directly, or cause coughing. Place the jars at a distance of from two to three feet from you

DIAMONDS ARE SCARCE,

AND

THE

REASON

WHY.

The diamond mines or fields are said to be nearly worked out. There certainly must be a limit to them. Is it not true that the more precious a thing is the less there is of it? Of course, there must be an exception to this rule. Popular books may be multiplied indefinitely. The dear purse-holding public regulates that; but at the outset the publishers alone determine what the book shall contain. There is a publication which every photographer in this country should be proud of, we refer to the *great* AMERICAN ANNUAL OF PHOTOGRAPHY. The edition of '92 now in press will be a memorable one. It has had a tendency to outgrow its predecessors and hence a limit has been fixed for the advertising space, and **that is nearly reached.** Will that directory of photographic manufacturers and dealers **contain your name?** The world-wide sale and circulation is well brought out in a contributor's letter, from which we make the following extract:

"Your valuable almanac is circulated in every club in every land, which is best shown by the fact that it has found its way to our place—one of the most out-of-the-way places in Europe—Helsingfors, Finland."

THE SCOVILL & ADAMS CO.,
PUBLISHERS,
423 Broome Street, NEW YORK.

DO YOU

CONSIDER The rate of $1.56 for a full page advertisement in 1,000 copies of the great AMERICAN ANNUAL OF PHOTOGRAPHY very low? We know of nothing like it, and

GIVE YOU a straight tip. Many of the regular advertisers are calling for increased space in the forthcoming issue. We will tell you why:

BECAUSE The '92 edition will be memorable for the list of authors who contribute, for the very attractive illustrations, and last, but by no means least, the issue of over 16,000 copies as the first edition.

WELL, NOW, How much space do you want at the following rates: $25.00 for full page; $15.00 for half page; $10.00 for quarter page.

Kindly communicate your decision at once, and oblige

Yours truly,

The Scovill & Adams Co.,

Publishers,

423 Broome Street, NEW YORK.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year.....$5 00
" " " six months..... 2 50
" " one month's trial..... 50

Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6⅛x9¼ inches; outside size, 8½x11¾ inches.

One page, each insertion.....$20 00
Half page, per insertion..... 10 00
Quarter page, per insertion..... 5 00
Eighth " " " 2 50
Business Notices, not displayed, per line..... 20

Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

PARAMIDOPHENOL.

WE have received a small quantity of this new and promising developing agent, and offer samples of it at the rate of 25 cents per 1 gram.

THE SCOVILL & ADAMS CO.

PORTER'S MILLS, August 29th, 1891.

THE SCOVILL & ADAMS CO., New York.

Gentlemen: The Waterbury Hand Camera you sent me a little while ago is just what I wanted for negatives for lantern slides—handy and no trouble. I use 3¼ x 4¼ plates, as they answer my purpose better.

ROBERT B. BRIGGS.

Studio Changes.

Logan, Utah. The store of Lewis David was damaged by fire.

Business Notices.

$250 WILL BUY one of the finest galleries in Colorado. County site; population 3,000; no opposition; cabinets, $4.50. The greatest health resort in the State. Stock at invoice prices. A chance in a life-time.
Apply GEO. DALGLEISH,
Georgetown, Colorado.

FOR SALE.—Camera 3¼x4¼, Tisdell Mahogany Detective; 12 Barnet Holders, Ruby lamp, etc. $15.00, cost $27.00. P. J. O'BRIEN,
215 East 13th Street.

Silver Paper
FRESH DAILY,
Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

FINE GALLERY FOR SALE.—With or without apparatus, or half interest. Good trade; well located; county seat. Famous Bedford Springs. Don't miss this opportunity. HOWARD, Bedford, Pa.

A GENERAL ASSISTANT who is first-class at retouching and finishing photographs; one who can do some wet plate work preferred. Address
SOUTHERN SOLAR PRINTING HOUSE,
Marion, Alabama.

FOR SALE.—Improved 5x7 folding Kodak, made for both Roll-holder and Plate-holders. Cost $75.00. Price, $55.00. For particulars, address C. M. BROCKWAY, 33 Worth Street, New York.

THREE different 8x10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
L. C. BENNETT, 423 Broome St., New York.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address
J. PITCHER SPOONER,
171 Main St., Stockton, Cal.

FOR SALE.—A Mignon Outfit, complete, consisting of a 3¼ x 4¼ "Mignon" Camera (Am. Optical Co.); 5 double plate holders, a 6-inch Wale "Universal" Lens and double-jointed adjustable tripod, canvas carrying case, etc. All in excellent condition. Just the thing for a tourist or a lady. Cost $60. Will sell for $35.
Address "MIGNON,"
PHOTOGRAPHIC TIMES Office.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., Z. T. Benson, and Newcomb & Owen.

JOHN HAWORTH, Manufacturer, Phila.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,

163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A middle-aged man, one who understands bromide printing Address A. L. E., care of PHOTOGRAPHIC TIMES.

A first-class operator for prominent Western studio. Address F. H. H., care of PHOTOGRAPHIC TIMES.

SITUATIONS WANTED.

A first-class printer and toner desires a permanent position in some good gallery in eastern Pennsylvania or New Jersey. Can also retouch. Address George Denel, 163 Washington St., Saratoga, N. Y.

Young man desires a position as printer and all-around work. Address Joseph H. Roller, 472 N. Fourth Street, Philadelphia.

By a No. 1 operator of many years practical experience, fully competent in all branches of the profession; speaking English, French and German. Terms reasonable, either on salary or percentage. J. Basano, 544 Eleventh Avenue, New York City.

Situation wanted by an A1 all round man, 10 years' experience; good references. Address Photographer, 7 Seckle Street, Cambridgeport, Mass.

Young man of experience desires situation as general assistant. Refers to J. N. McDonnald, 544 Broadway, Albany, N. Y. J. Dudley Hoyt.

A young man, about 23, single, temperate, wants a position as operator and retoucher or printer in a good place. Address, Mr. S. Silvermine, Photographer, care of Messrs. B. F. Ogdens & Sons, Pittsfield, Mass.

A first-class retoucher and printer would like a position, city or country. Address Matyen, 312 18th Street, Brooklyn, N. Y.

As general assistant in a photographic studio. Ignatz Bunzel, 213 East 108th Street, New York City.

A young lady desires a situation in New York or Brooklyn as retoucher. Address L. J. E., care of George Murphy, 2 Bond Street, New York City.

A good all-round man who wishes to learn operating desires a position of any kind in a good gallery. Had experience in all branches, but would prefer position as retoucher and assistant operator. Can give good references. Reasonable salary. E. W. S., care of Pirie MacDonald, 496 Broadway, Albany, N. Y.

First-class lady retoucher on large and small work desires position. Unquestionable references. Address Miss F. Clifford, 73 Lenox Street, Boston, Mass.

A good all-around man, who wishes to learn operating, desires a position of any kind in a good gallery; had experience in all branches, but would prefer position as retoucher and assistant operator; can give good references; reasonable salary. E. W. S., care Pirie MacDonald, 496 Broadway, Albany, N. Y.

Young man, with three years' experience (wet and dry), good operator and retoucher, desires position. A. S. Green, 4517 Main Street, Frankford, Pa.

A first-class retoucher, who is able to assist in other branches, wants a position after September 1st, in only a first-class gallery. Address Retoucher, care of Mr. C. Klipstein, Druggist, Franklin Avenue, cor. 16th Street, St. Louis, Mo.

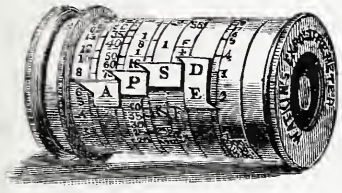
A first-class negative retoucher, capable and willing to assist under the skylight and in the dark room, is anxious to obtain employment. Address, H. C. Watton, P. O. Box 57, Shelbyville, Ills.

First-class printer and toner wishes a situation, city or country; best reference from leading houses. John Wenglein, 79 Greenpoint Avenue, Greenpoint, L. I.

By operator, retoucher and printer of many years' experience; or will go as general assistant; best of references. J. M. Manning, 44 East Third Street, New York City.

By thoroughly experienced printer and toner; in or out of town; first-class reference. John C. Davis, Rochelle Park, N. J.

As printer, toner or retoucher, by young man; eight years in photo business; will go abroad. C. L. A., Box 99, Albany, Ga.



THE WATKINS EXPOSURE METER.

IN ENGLAND. *PATENTED.* IN AMERICA.

PRICE.

With one Exposure Ribbon and Book of Tables....$7 50
Extra Exposure Ribbons, each..... 25

This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. Write for testimonials and particulars—free.

For Sale by

THE SCOVILL & ADAMS CO.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,

Sole American Agents for

R. & J. BECK'S MICROSCOPES,

PHOTOGRAPHIC LENSES AND SUPPLIES.

33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*

☞ Send for our New Photographic Bargain Sheet.

CHAS. T. FELLOWS, Pres. F. A. GENTH, JR., Sec'y and Treas

The Fellows Photographic Co.,

1024 ARCH STREET, PHILADELPHIA.

Freight Entrance, - - - - - - 1023 Cuthbert Street.

PHOTOGRAPHING FOR THE TRADE, COMMERCIAL PHOTOGRAPHY,
Including photographs of Machinery, Buildings, Interiors, Articles of Commerce, etc.

LANTERN SLIDES, STEREOSCOPIC VIEWS, Etc., AMATEUR WORK,
Such as Developing, Printing, etc.

RETOUCHING, BROMIDE ENLARGING, Etc., Etc.,
Are all branches to which special attention is paid, and for the requirements of which no expense has been spared in order to perfectly equip our establishment.

☞ Write for Price-List. Mention this Journal.

F. A. GENTH, JR., Secretary.

BACKGROUNDS AND ACCESSORIES.

The FINEST and MOST COMPLETE LINE made, including everything desired.

SPECIAL DESIGNS in Backgrounds without extra charge.

Send for new books of Photographs.

J. W. BRYANT,
La Porte, Ind., U. S. A.

READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

PHOTOGRAPHIC MATERIALS
ZIMMERMAN BROS.
ST. PAUL MINN

ELLIOT'S MAILING TUBES.

Photographers will find these Tubes invaluable for mailing unmounted photographs, etc.

PRICE LIST, PER 1000 INCHES:

Diameter.	Light.	Medium.	Heavy.
1 inch	38 cts	$0.42	$0.54
1¼ "	44 "	.52	.63
1½ "	48 "	.62	.75
1¾ "	56 "	.70	.90
2 "	58 "	.80	1.00
2¼ "	68 "	.90	1.15
2½ "	72 "	1.05	1.25
2¾ "	78 "	1.15	1.30
3 "	82 "	1.25	1.40

These Tubes, on account of their strength, lightness in weight and uniformity, are strongly recommended for mailing and rolling purposes.

A. G. ELLIOT & CO.,

PAPER MANUFACTURERS, AND WAREHOUSE,

Nos. 30, 32 and 34 South Sixth Street,

PHILADELPHIA.

☞ **BE WISE and advertise in the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.**

PHOTOGRAPHIC DIRECTORY.

F. D. Lanier Walker,
AMATEUR PHOTOGRAPHIC SUPPLIES,
18 John Street, New York City,
Successor to C. L. Littlewood & Co.

JOHN H. DALL,
618 and 620 Clay Street, San Francisco, Cal.
Photographic Supplies.
Established in 1850.

Get Your Sensitized Albumen Paper for 25 cents per Sheet,
At 59 Beekman Street, New York City.
PHOTO PRINTING AND MFG. CO.

L. M. PRINCE & BRO.,
Photographic Supplies,
148 West 4th Street,
CINCINNATI, OHIO.
Ohio Agents for Blair Cameras.

ALL MAKERS' CAMERAS
BOUGHT, SOLD AND EXCHANGED
AT
J. F. LLOYD'S, 845 Sixth Ave., New York City.

R. M. Davis.
DENVER.
The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

J. S. LOPEZ & CO.,
O'REILLY 92, APARTADO 213.
HAVANA, CUBA.
Importers of Goods for Photographers, Engravers, and Painters.
Editors of the "PHOTOGRAPHIC BULLETIN."
REFERENCES IN NEW YORK,
THE SCOVILL & ADAMS COMPANY.

HOVEY BROTHERS,
156, 158, 160 EAST MAIN STREET,
ROCHESTER, N. Y.
We sell everything photographic. Send list of goods wanted for special estimate.
RED LETTER PRICES.

THE SCOVILL & ADAMS CO.,
SUCCESSORS TO
Photographic Department, SCOVILL MANUF'G CO.,
PHOTOGRAPHIC MATERIALS.
OFFICE AND SALESROOMS:
423 BROOME ST., NEW YORK.
H. LITTLEJOHN, Secretary. W. IRVING ADAMS, President.

PHOTOGRAPHIC SUPPLIES.
TUCKER & BUTTS,
37 and 39 Court St.,
BUFFALO, N. Y.

GOVAN & CRAMPTON,
Successors to MINOTT M. GOVAN,
DEALERS IN PHOTOGRAPHIC SUPPLIES,
No. 5 Clinton Place,
(3 doors from Broadway,) NEW YORK.
Fully Illustrated Catalogue and Price List mailed on application.

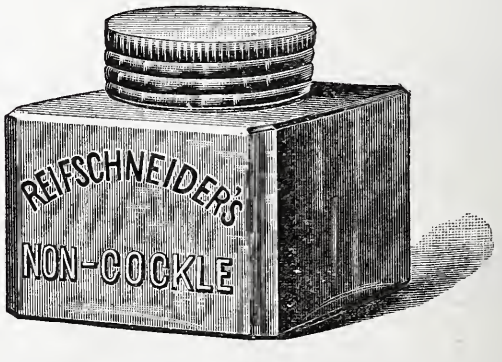
CARBUTT'S
EIKO-CUM-HYDRO DEVELOPER.
For Sale by all Dealers.

R. D. GRAY,
MANUFACTURER OF PHOTOGRAPHIC
LENSES,
76 BEEKMAN STREET, NEW YORK.

JAMES S. CUMMINS,
Photographic Supplies,
106 N. Charles St., BALTIMORE, MD.
Everything in Photographic Merchandise required by the Professional and Amateur.

BIGGART SOLAR PRINTING CO.,
58 and 60 University Place, New York.
We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
SEND FOR PRICE-LIST.

"NON-COCKLE"
FOR MOUNTING PRINTS.



40 Cents per Bottle.
THE SCOVILL & ADAMS CO.,
Trade Agents.

☞ BE WISE and advertise in the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.

Carbutt's Orthochromatic Plates.

PHILADELPHIA, August 21st, 1891.

MR. JOHN CARBUTT,

DEAR SIR: The 18x22 Orthochromatic Plates I have been using in my work on the Pennsylvania Railroad are of such fine quality that I feel that I should let you know of it. They possess all the qualities of a fine wet plate and are very uniform, giving graduations in the foliage that I have not seen since I used your "A" Plates in Egypt, Arabia and Palestine in 1881. During a recent trip through Mexico with Mr. John L. Stoddard, I found the Orthochromatic Plates far superior to the ordinary for distant mountains and snow-capped volcanoes, and especially so when using a color screen.

Please advise me when I can expect more of the 18x22 size, as I will soon have used up the four dozen now on hand.

Very truly yours,

WILLIAM H. RAU.

In use by

F. W. Guerin,

B. J. Falk,

J. A. Scholten,

Urlin & Becker,

J. C. Strauss,

Alex. Martin,

Rosch Bros.,

D. B. Chase,

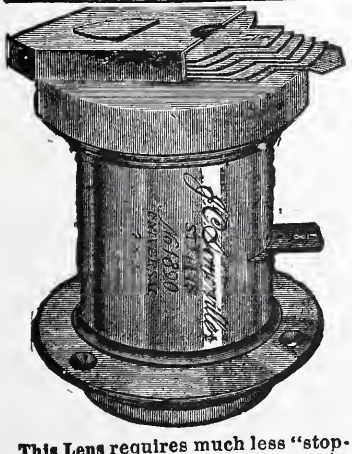
and many others who excel in the Photo. Art.

J. C. Somerville.

JOBBER OF

PHOTOGRAPHERS' SUPPLIES,

411 & 413 Washington Ave., ST. LOUIS.



This Lens requires much less "stopping down" than other instruments.

OUR NEW SYMMETRICAL LENS.

The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and with the same length of focus as heretofore a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

No.	Diameter.	Focus.	Size Plate.	Price.	With Iris Diaphragm.
1	1 5-16	7 1-2	5 x 7	$20 00	$25 00
2	1 11-16	10 1-4	7 x 9	30 00	35 00
3	2 1-8	12 3-4	8 x 10	40 00	47 50
4	2 7-16	14	10 x 12	50 00	60 00
5	2 11-16	18	12 x 15	60 00	70 00
6	3 3-16	21 1-2	16 x 20	75 00	85 00

IF YOU ARE IN WANT OF A LENS

Be sure to try our LENS before buying.

Will be sent subject to 5 days trial, and, if not satisfactory returned at my expense.

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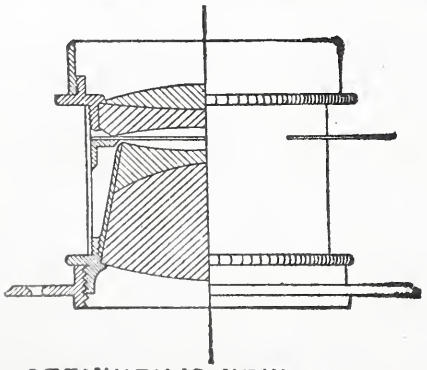
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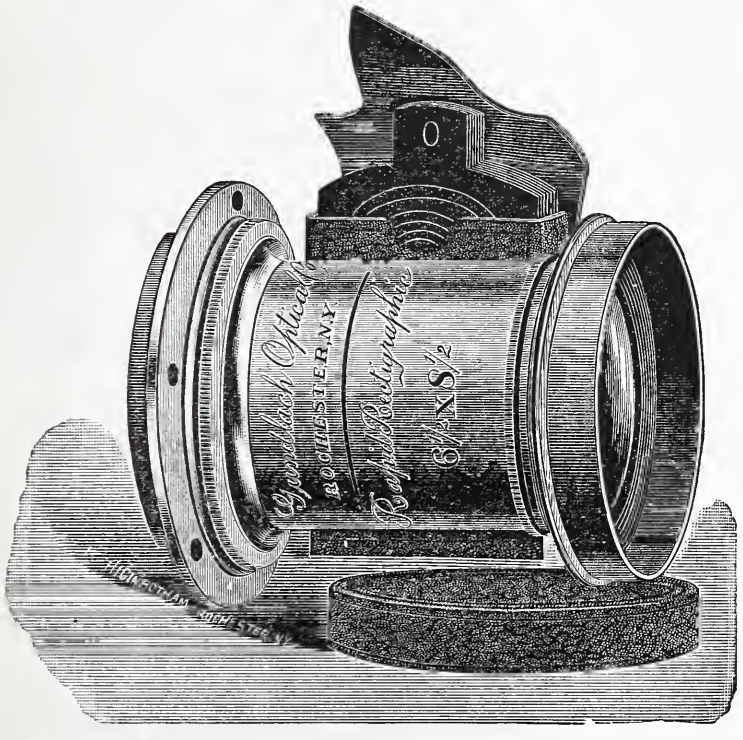
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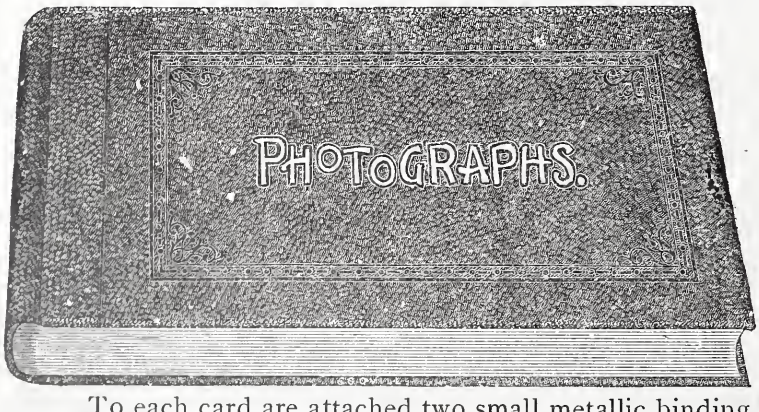


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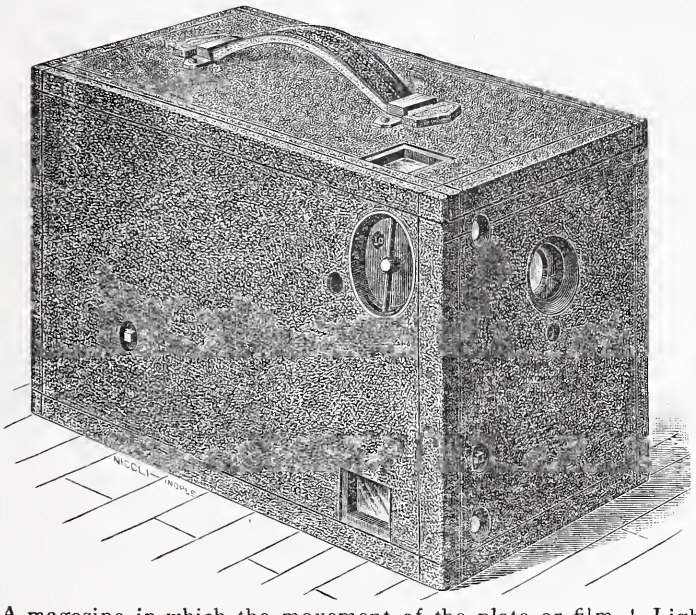
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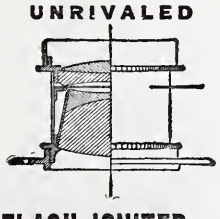
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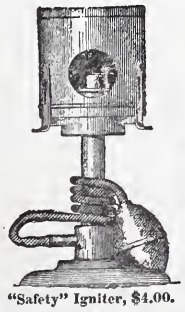
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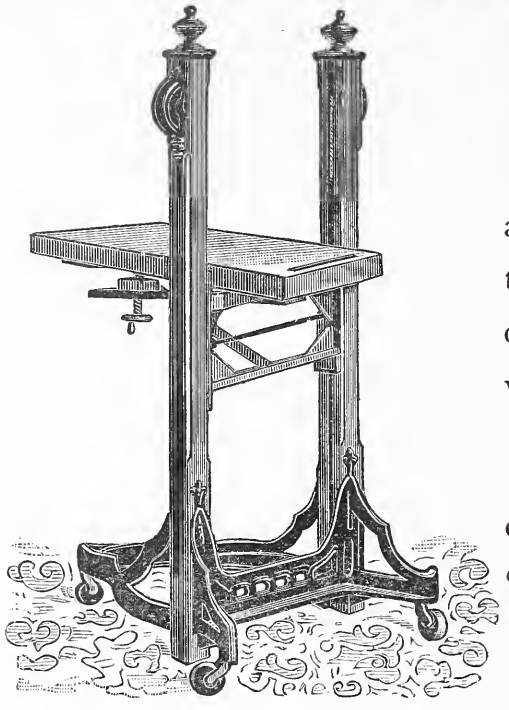
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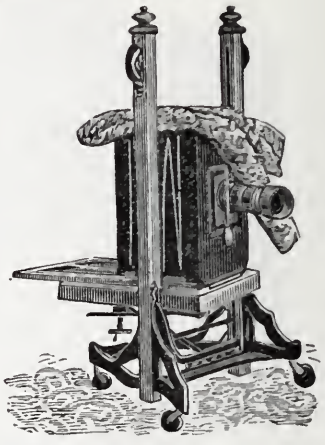
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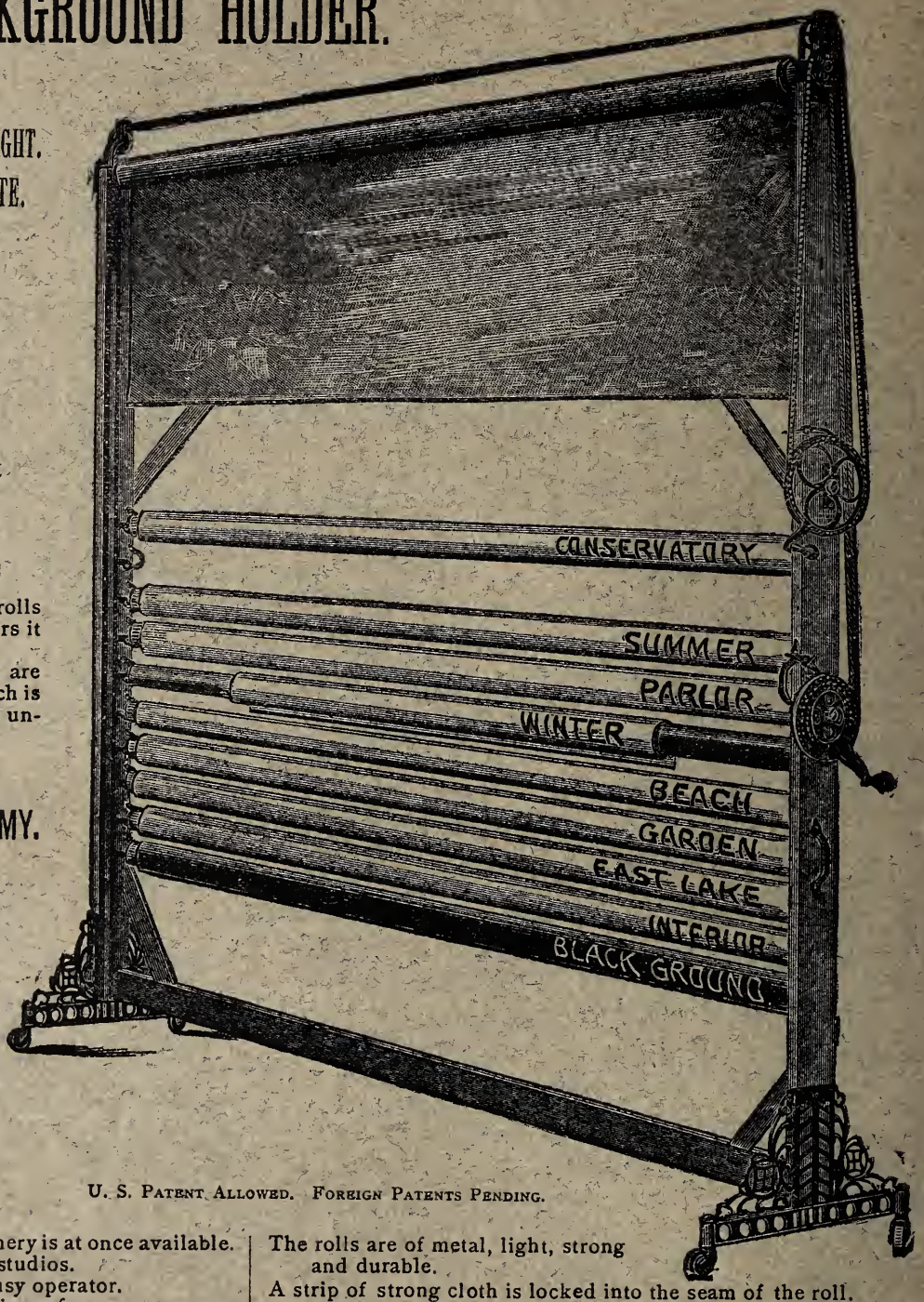
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R. G. Savage, Photo.

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A UTAH FOREST.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, SEPTEMBER 18, 1891. No. 522.

A UTAH FOREST.

WE take pleasure in giving our readers this week the picture by R. G. Savage, son of C. R. Savage, the well known photographer and photographic merchant, of Salt Lake City, which we half promised them several weeks ago. It is a characteristic bit of a Utah forest, and as such is of more than passing interest. Mr. Savage has selected his point of view in such a manner as to group the trees in a particularly picturesque way. The great contrast, however, between the light and shade, unavoidable in such pictures, has made the high lights a trifle too intense. But on the whole we have a pictorial bit of landscape well rendered and well reproduced.

SKY AND CLOUDS.

A FEW hints on the foreground, and also on the background or distance, have already been given in these pages (*vide* March 6th—April 10th). And now a few similar notes or hints may be offered upon that very important part of our out-door pictures, which often enough receives but scant attention at the time, and becomes afterwards a matter more of chance than of sound judgment.

First, then, let us bear in mind that the sky is the region from which comes our source of lighting. The sun may be unobscured by cloud, fog, or mist, and in that case we shall get sharp-edged shadows, etc. Or the sun may be more or less hidden or screened by clouds, so varying the sharpness of shadows. Or the sky may contain so much cloud, fog, or mist, that the illumination seems to be general rather than coming from any one particular place.

Curiously enough all this is so well known to everybody that very few indeed take the trouble to note carefully and exactly how greatly these effects vary from each other; the reason, in part, being that we seldom see the various effects following one another sufficiently quickly to enable us to see how greatly they differ from each other. I will therefore ask my readers to take the trouble to make a few very simple experiments with any artificial light under such control that its various effects may be made to follow each other *quickly*, and the difference noted.

We can have nothing better for our purpose than a white plaster cast of any object showing sharp edges and also rounded surfaces. Let your cast stand upon a sheet of white paper so that you may compare the relative values of the shadows. But also have at hand a similar sheet of brown paper so that you may note the difference of a shadow thrown on a colored surface.

Now arrange your lamp (gas, etc.), so that the light falls upon your object from some considerable distance. This may represent direct sunlight. Now introduce between the light and the object, one by one, several sheets of glass at some small distance from each (if they are a wee bit dusty, so much the better). This represents varying states of the atmosphere—such as a slight haze, or fog.

Now produce cloud effects by puffing tobacco smoke between the lamp and the cast, or employ for this purpose sheets of tissue paper, oiled or clean; and follow out this line of experiment with and without a large white sheet used as a reflector, until you reproduce roughly all ordinary effects, from direct, clear sunlight, to the dullest gloom of a gray day. This latter effect will probably require three or four lamps in the various corners of the room, each only shaded by an opal globe or tissue paper screen, the light being scattered and reflected in every direction.

Having now mentally stored up the *connection between light and effect*, you may carefully note the sort of sky and cloud which produces similar effects on near and distant landscape scenery.

I desire to lay great stress upon the effects of lighting so far as it hardens or softens the shadow

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edges, etc., because it is upon this point that mistakes (often quite unpardonable) are most frequently made by those who pride themselves on "printing in" skies.

That the nature of the sky and clouds should be in harmony with the general character of the lighting of the scene is of the very *first* importance. And any one who fails to observe the connection between the two—for one is the parent of the other—deserves to be ranked with S. S.:

"Simple Simon went to see
If *plums* grew on a *thistle*."

There was a time (alas! not long gone by) when blank skies reigned supreme, or when one sky negative did general duty; or when the sky and the landscape were lighted by opposition suns. But it is to be hoped that such times are now over. There is still need for a few words of caution and warning as regards the adjustment of the cloud negative to the landscape.

One *special case* of warning may be cited, viz., as regards any scene in which water (more or less calm) is represented. Several glaring instances of blank white space of calm water, with a cloud-laden sky, are but recent memories. Be specially careful that your calm reflecting surface does not betray you. It may, under peculiar circumstances, occur that the light reflected from the water's surface be the brightest part, but this is only *very* exceptionally the case in nature. As a general and practically universal rule we may say that the surface of still water reflects the forms of clouds, etc., above it, and also as the water absorbs some part of the light falling upon it, only *part* remains to be reflected, so that its brightness, *i. e.*, light value is generally lower in tone than the sky.

One other case occurs to my mind requiring also a word of warning, viz., snow scenes. Here we have an apparent contradiction to what has just been stated; for often, nay generally, the white snow does appeal to the eye more strongly than the deep clear blue sky, and in this case the greatest care is required to keep the fresh-fallen snow the brightest white without at the same time printing the sky so dark that it appears a stormy rather than a pleasantly colored expanse. Every one must have observed that the snow-clad trees stand out as white against the brightest sky, but yet the sky is bright too.

At first sight one may be tempted to state that the only truthful sky to be printed with any scene is the one which occurs in nature at the moment the rest of the picture is secured, and to meet that feeling various sky shutters, etc., have been designed. It cannot be denied that in many cases the natural sky would be preferable to one who shows the slightest incongruity; at the same time, remembering that the end of art is to *combine truth and beauty*, we must for truth's sake admit that some aspects of truth are more pleasing than others. Hence a truthful artist will not only select his foreground with a view to showing its best in its most pleasing aspect, but will also select its lighting with that same end in view, and will furthermore avail himself of such an arrangement of sky and cloud that this effect is produced in the most pleasing manner.

Every practical man knows only too well the great difficulty of getting on the same negative a properly exposed foreground, and also preserving the cloud effect; and much as was promised us with the advent of color sensitive plates, the difficulty for the most part still remains; yet if you can, by a little extra trouble or care in exposure, development, etc., preserve in your sky some of the cloud-form present at the time, though perhaps not sufficiently for printing purposes, this note of the actual state of affairs may, and very probably will, be of the greatest use in guiding your choice of a cloud negative when the time of printing comes.

The point I am now anxious to insist upon, first and chiefly, is the subtle harmony which always must of sheer necessity exist between the sky generally and the rest of the picture, seeing that one is dependent upon the other. Where this harmony is absent the blame should rest upon photographic process or worker rather than nature. What is urged then is, that with every out-door picture taken, a careful, accurate and full *note* should be made, *at the moment*, stating the color of sky, form of cloud, and direction of the chief source of lighting; also, now and then, a note may be made as to the wind and the direction towards which the clouds are moving.

As to the actual taking of cloud negatives, combination printing and so on, these are subjects which demand separate and systematic treatment. It is easy enough to secure *a* cloud negative of an indifferent sort, and also easy enough to print in *a* sky; but to secure *the* right negative and to adjust *the* right negative to the foreground and distance, is no easy matter, if we would defy criticism by being fully armed with a faithful and beautiful rendering of nature.

Manifestly the first and fundamental step is to get some accurate knowledge, by keen and constant observation (making notes and pencil sketches at the time and not relying on memory only), of the connection between various kinds of sky lighting and its innumerable effects on light and shade in the various parts of the picture. *F. C. Lambert.*

HOW TO SUCCEED.

REAL success is seldom attained without earnest effort, and in these days of fierce competition it must be intelligent effort too. Business is almost an exact science; if you know the rules and follow them success is nearly certain, if you disregard them failure is equally sure.

A photographer needs to be a business man as well as artist and mechanic. Not every one can be the leading artist of his town or city. Very few can amass a fortune in the picture business. No artist can ever hope to make pictures fully up to his ideal. To attain these objects might be called success, but the kind of success we wish to consider here is for all.

A man who has a steady and increasing business, enough to give himself and family a comfortable living, and a little laid by every year for old age, ought to be as happy as a Gould or Vanderbilt, and it can be done with most any business built on the foundation of *thoroughness*.

In order to succeed in photography just four qualifications are necessary: *Honesty*, *promptness*, *courtesy*, *cleanliness*—just these four—no more, no less. Now, perhaps you will say the chief requisite is left out, viz., the ability to do good work. You are mistaken. Some men succeed who make indifferent and even poor pictures.

If you are honest, as I understand the term, you will try and give every customer the value of his money. If you are an indifferent workman, you cannot expect to command as high a price as your more artistic neighbor, but do the best you can for every customer, and your work will, more than likely, keep improving. Of course there must be some degree of adaptability for the work attempted. If you are not adapted to the business at all any person who is your friend will say, "Get right out of it at once and do something else." You cannot expect to teach music if you cannot distinguish one tune from another.

Now, in regard to the first qualification—honesty. No permanent and long continued success can be expected without it. You *must* give your customers at least a fair return for their money, or they will not stay with you. Sharp practice, and pretending to give something for nothing, may pay for a while, but the people are sure to find you out after a while if you run a business in that way. Do not deliver a picture that you would not be willing to pay the price for yourself.

A great many do not realize the immense importance of promptness. This is one of the chief elements of success in any line of business. It is not necessary to hurry and worry yourself and help to death in order to be prompt, but you will need to be orderly and systematic. Take a reasonable length of time to finish your work and have it ready when promised—that is promptness. If you promise pictures in one week and then take three or four to finish them, and let people come in half a dozen times before they get them—do not expect any great success, because you don't deserve it, and you won't have it.

With many people first impressions are strongest. If you meet them in a kind and friendly manner, they will probably like you ever afterwards; while, on the other hand, if crustiness is visible, they may take a dislike that can never be overcome—and every one to a greater or less extent appreciates courtesy. If you cannot be agreeable yourself, it will pay you to hire some one who can and let that one talk with your customer.

Many a man has won his way to fame and fortune by his agreeable manners. Be not servile; but courteous and manly.

Another important matter to be mentioned is cleanliness. Begin first with yourself; wear clean collars; keep your shoes blacked; keep neat and clean always. The ladies notice it. And your gallery—keep it clean and orderly from one end to the other. Spasmodic cleaning up once in a while amounts to almost nothing. It is just as easy to keep clean and look well *all* the time, instead of one day in a week or month. Have a place for everything; let it be as near as possible where it is used and when done with it put it back in place at once. Do you not see that it takes less time to do so than to look in several places for it the next time you want to use it? Have a room in your gallery for everything unsightly and keep every such thing in it all the time. Have a basket for waste paper—sweep the floor regularly. Do you not see the effect it has on customers? If they come in and see your studio looking neat and clean, and showing every evidence of good taste, they think the same qualities will appear in their pictures.

Do you keep your gallery in a constant clutter, with cameras lying around on the floor, disreputable looking boxes obstructing passage ways, lenses gathering dust in some corner, or temporarily laid in some chair? Do not think this picture overdrawn; it is the actual condition of some galleries. I believe many a good business has been "petered out" by keeping a slovenly dirty gallery.

In conclusion, the proprietor of the gallery is responsible for almost everything. If he sets an example of neatness and order, and insists upon it, the help will usually fall into the same habits.

The same may be said in regard to courtesy, and it does not avail much for the help to have these qualifications if they are lacking in the employer, unless he keeps out of the way and lets them run the business.

The proprietor should also look after all the little details, see that no stock is unnecessarily wasted, that wastes are saved, and examine all work before delivery to see that it is right.

If business is dull and decreasing from year to year do not blame the amateurs, and say that they are spoiling the business, or that the *luck* is against you, or some other excuse. Just examine yourself, and see if you are not getting a little behind the times. Perhaps your competitors are doing more artistic work than you, at the same price, or just as good at a lower price. A score of reasons will suggest themselves. Examine the situation carefully, and see why it is that you do not succeed. If patrons have been gradually leaving you and business declining there *must* be a radical change either in business methods or quality of work, in order to turn the tide the other way, and you can do it if you *will*. Just let me add one word more: always have one or more of the best photographic journals. Perhaps you think you cannot afford it, but you cannot afford to be without it

E. B. Luce.

ON THE PRESENT AND FUTURE POSITION OF THE HIGHER ART PARTY IN PICTORIAL PHOTOGRAPHY.

THERE can be no doubt that the question whether or no, and from what point of view, photography can claim to be considered a fine art, is once more being brought prominently forward. I have no intention of begging this question. Whatever my private opinion and hopes may be, I will not dogmatize, but admit that it is still an open one. Still less would I presume to treat as ignorant those who may differ with me—such veteran artists, for instance, as Mr. H. P. Robinson, if, indeed, he does materially differ with me. The time for this description of argument has, I hope, gone by. What I would urge is that in the renewed strife which is likely to be waged, the party of progress must be uncompromising in the position they hold. They must not give in to popular prejudice; there must be no pandering to public taste in exhibitions, nor fear of ridicule. Sooner or later, I believe, the time will come when pictures according to the newer methods (not necessarily in any defined system of focus) will alone find their places on the walls of our photographic salons. Time must be given now, but if after the lapse of a few years nothing that can be done recommends itself to the approval of artistic critics of eminence, if academies and the artistic press still persist in disclaiming photography as an art, then it is evident that renunciations must be expected even from those who shall have striven so hard to assert the higher claim. They will be compelled to acknowledge themselves defeated.

The experience of the many exhibitions which the general spread of photography has called forth must have brought prominently before the minds of very many observers the fact that the attainment of a very high degree of excellence in the production of the ordinary landscape photograph of the old style—and I might add even the stereotyped professional portrait—is by no means difficult or unusual. But it rests there. Year after year, in recent times, it is impossible to help noticing at this or that exhibition the same uniform level of merit, beyond which few seem able to advance. With regard even to professional work, the number of clever operators in the studios, or of retouchers, is very large; so large that unless in exceptional cases the remuneration is low. It is, perhaps, partly for these reasons that what may be called the advanced school has come forward. A certain number of intelligent workers found that in an artistic direction their efforts appeared to be limited to a degree of excellence which required only some amount of deft manipulation to accomplish; that this excellence was not very difficult of attainment, and could bring them no further distinction. Study and inquiry showed them soon enough where the fault lay, and an endeavor to apply a higher standard at least brought the art into the position which it has begun to occupy—a position in which there is doubtless room and hope for further advance and improvement.

It is too much the fashion (an inevitable fashion, it must be confessed, considering the training and tastes of the vast majority of those concerned) to judge a picture solely by the rules of common sense. Sometimes, indeed, we find that the public is invited to vote upon what it considers should be adjudged the best picture. At other times, at photographic exhibitions, scientific and shrewd business men are called upon to act as judges of what is at least called art. This is all very well from a popular point of view, and if photography is never to aim higher than the standard of the railway station or the Derby Day, it will no doubt have to be acquiesced in. But if it may claim anything higher (and here, I would observe, that I

assert nothing), it must be remembered that there is something more necessary to apply than common sense. There is a sixth sense, a very *uncommon* sense, limited to few indeed, and it is to the judgment of these few that they whose aspirations for the future of photographic art are ambitious and uncompromising, will alone be willing to submit their work at future exhibitions. I, and others with me, have faith. If those who disagree with us are right, if time and study produce no definite effect, then some at least will acknowledge that *le jeu ne vaut pas la chandelle* and will use the picture side of photography only from the undoubtedly interesting point of view of the tourist and kodakist, and will not (except perhaps to save expense) take the trouble even to develop and print the negatives which they may produce as pleasant reminiscences of scenes and faces.

The main cause of a dead level of mediocrity, or excellence, as the case may be, such as that to which I alluded just now, is not perhaps very far to seek. It would be unreasonable to expect more from people who pursue an art in a dilettante manner only, at odd times and spare moments. These are the true amateurs, in the unfortunately accepted sense of the term, and for them excellence, up to a certain point, is not difficult of attainment. Short of inherent genius (which exists for the photographer as well as for other artists) persistent practice and study, joined with the necessary aptitude, are essential if we would depass mediocrity. It is the same in many pursuits. Take billiards, for instance. How common it is to find that a certain limit of skill is arrived at, beyond which casual practice never permits us to advance. I do not, of course, wish to contend that none can reach high excellence in artistic photography but those who are able to devote to it all their time and all their energies; but that an approach to this is almost imperative, in the absence more especially of masters and schools, and in view of the fact that workers have, for the most part, to train themselves, and to learn experience from the errors which they commit. In the present condition of affairs, without schools and without masters, it is not to be expected that, short of born genius, a young worker can hope to produce a picture in the degree of excellence of which some believe photography to be capable.

The misapprehension of the public is so great that one is obliged to repeat over and over again that the attitude of the new school is not governed solely by a question of focus; still less has it any relation to the extraordinary ideas promulgated under the misapplied and misunderstood term naturalistic, which we heard so much about a little time ago. Happily the funeral of all this has taken place, and an epitaph has, it is said, been inscribed on the monument of folly. People are coming more to their senses, and are beginning to see that the efforts to raise the level of art in photography have nothing to do with ignorant criticism and pitiful denunciation of great painters, and are little affected by squabbles between scientific instrument makers and amateur opticians (in which the former in their way get the best of it). They are based solely on a better understanding of the everlasting principles of art, and a willingness to learn before attempting to teach. Let us not deceive ourselves; there is not one amongst us of sufficient power to force upon the world new principles with regard to photographic art which are at variance with the practice of ages. Provided we do not sit at the feet of professors of the most extreme schools of modernist painting, we may choose our masters (I ought, perhaps, to say our model) where we will; but for some time, at least, we shall have to follow at a distance, and it will be far better for us to leave others to discover that photography is on a level with this or that monochrome art than to proclaim it ourselves loudly on the housetops.

I do not presume to dogmatize or to pose as a master. I pretend only to consider myself as one of a small band of workers who apply themselves more earnestly and more systematically to study and practice, and it is my endeavor to induce others to think and work in the same direction. I have certainly no desire to discourage the large number who amuse themselves by taking views and portraits as records, or to influence them in any way. The pursuit which they engage in is a most interesting and charming one. But I feel that, as a serious branch of art, photography must soar above such a minor effort as this; if it fail to do so it must inevitably return to the position it has so long occupied. It is quite certain that the universal spread of the science has now at length brought it to trial in a definite manner, and although the trial must necessarily—in fairness to the plaintiff—be a somewhat protracted one, the verdict will be given before long, and this time that verdict will be a decisive and a final one.

It may, I think, be laid down as an axiom, to be applied, of course, with due discretion, that the merit of a work of art, be it poem, music, or picture, is in inverse proportion to its popularity. Is Corot popular, or his brethren of Barbizon? Is Frith, is Landseer—are Francia, Watts, Whistler, Beethoven, Dan Godfrey, Hope Temple, Wagner, the Christy Minstrels, Pears' soap "Dirty Boy,"

Jean Goujon, Tennyson, Swinburne, Browning, Longfellow? What are their respective merits? And is it too much to hope that Mr. H. P. Robinson will one day give us a picture which shall be a work of art, and at the same time distinctly unpopular?

In conclusion, I do not wish to be misunderstood. I think I see and know as well as any one the disabilities under which photography labors. I am not so foolish as to claim for it a place on a level with the highest efforts of painting or of etching, but I do believe that it will prove itself worthy of higher recognition, of an acknowledgment of capability for greater originality, poetry, and individuality than has, from an artistic point of view, been accorded to it during the half century or so of its existence.—*Alfred Maskel, in the Photographic Art Journal.*

THE RISE AND FALL OF THE DAGUERREOTYPE.

VI.

(As seen by a Country "Operator.")

My first purchased outfit consisted of one half-size camera, one pair ditto ditto coating boxes, and one chair clip head rest, all second-hand. The camera was furnished with a Voigtlander lens, accompanied with the legend that it was the identical one from which the plaster casts mentioned in a former chapter were made.

Whether this was true or not I had no documentary evidence to show. The professor, however, assured me he had no doubt of its authenticity. He also said he felt certain the lens was a good one, although its former possessor had been able to obtain nothing with it but blurred images. It had no central stops, and gave with the full opening a well-defined, luminous image, which was promising. In short, we found that by moving the lens forward a certain distance after focusing it, the image on the plate came out with the same sharpness as shown in the previous image on the gound glass. This, of course, proved that the chemical focus was behind the visible focus, and therefore the sensitive surface must be placed behind the position occupied by the ground glass when the visible image was sharp on the latter. This object was gained once for all, by setting the ground glass forward in the frame to the same distance from its normal position. Theoretically it will be claimed that this was incorrect, and that a different adjustment ought to be made for every different focal distance. However this may be, I never discovered the need of any readjustment, and say now, after having examined anew many old specimens made with that lens years and years ago, that I have never seen any more delightful optical work than was performed by it. I discovered that I could not obtain in any plane (so to speak) of the picture the extreme sharpness that some of my friends and competitors were able to produce, and I was sometimes almost afraid that this intensity of detail might tell in their favor to my disadvantage. But I also discovered a charm in pictures that were nowhere exasperatingly sharp and yet nowhere wanting in sufficient detail.

But if my lens proved to be a blessing in disguise, for such in verity it was, it was the only piece of apparatus of much value, except as a makeshift. One of my coating boxes was cracked—that is, the jar. This I mended with *cloth*. As the experiment was a success, and as the way of doing it may *suggest* an expedient in some emergency, I will impart the secret.

I took a strip of strong coarse sheeting as wide as the jar was high, and long enough to reach around it, and, as I knew how to cover a ball, proceeded to surround it on its four upright sides with a tight bandage, drawn together with as much tension as the cloth would permit. This was painted with several coats of boiled linseed oil and white lead, which dried like a bone, making the jar then stronger than ever before, and it lasted for years.

Who that has ever in his life used one of those nondescript, curse-inciting engines, once known on earth as the chairclip head-rest, will ever forget it? Surely, any one who, having been led by circumstances into confidential relations with any machination of like power for evil, has escaped with nothing to repent of in consequence, is a fortunate individual. Think how many have fallen like one of my old friends whose name I withold. One fine day, being reduced to his last plate—not having time to prepare another, and having no assistant—another customer called—a very particular person who could spare only a few minutes for the sitting. It was an important case; reputation was concerned in its successful issue. On the other side the conditions were all favorable—light good, no doubt about the time of exposure. My friend went forward confident of success. The sitting was made in dashing style; then a short suspense. After a little a voice was heard from the dark room. Listen! These were the very words: "D——N THE HEAD REST!" Considering the provocation, perhaps it may be hoped the recording angel treated it in some such manner as he did the oath of Uncle

Toby. The most remarkable thing about these lively machines, and one that I never saw or heard satisfactorily explained, was its faculty of getting into sight. I will offer but one suggestion, which any one who does not think as reasonable as some other explanations of well known phenomena, may furnish a better one if he can—and that is, this machine was composed of wood and iron, two substances by nature antagonistic the one to the other. There were wooden rods which were expected to slide through iron tubes, and nothing was more common than for them to refuse to do so. Another time an iron screw was set to prevent a wooden spindle from turning or slipping down, especially when the prongs were immersed in the mazes of a nervous lady's back hair. Of a sudden, without the least warning, that particular screw upon which so much depends, gives way; another, intrusted with the duty of keeping the fabrication upright deserts its post, when a general catastrophe seems inevitable, and which nothing short of the wonderful presence of mind of the operator prevents. Don't tell me there wasn't some old hard feeling between the wood and iron at the bottom of all this trouble.

W. H. Sherman.

(*To be continued.*)

TESTING LENSES.

[From "Photographic Optics,"* by W. K. Burton.]

To perform a thorough test of a lens, to be able by examining it to say at once what is its standard of excellence, and, if it have faults, what precisely these faults are, is a thing requiring great skill, much practice, and some knowledge of optics; but no very great practice is needed to judge fairly well of the properties of a lens, and it is of great importance that the photographer should be able to do so, especially if he have a tendency to pick up second-hand lenses. Lenses offered second-hand by all except recognized dealers in photographic goods are, for the most, rubbish; but if the photographer knew how to tell a good lens from a bad, he may occasionally pick up an excellent instrument for a mere trifle.

We shall give first a few tests, of which it may be said that if any one of them give an unsatisfactory result, the lens should be at once condemned. We shall then give the method of comparing two lenses. It is only by comparing a number of lenses with each other that the photographer can learn how actually to judge of a lens, as till he has made such comparisons he cannot be expected to know what to look out for.

*New York: The Scovill & Adams Company, Publishers.

Focus.—The first thing is to discover roughly the focal length of the lens. The methods of doing this have already been described.

Aperture.—After the focal length has been determined, it is necessary to observe the maximum aperture of the lens, as probably two out of three lenses offered for sale, say by pawnbrokers, may be comdemned by this point alone. In describing different forms of lenses I have given for each form the maximum aperture at which the lens can be expected to work. *If a lens be offered for sale with an aperture much under this it may be assumed at once that the lens is defective*, the aperture having been reduced to hide the defect—probably imperfect correction for spherical aberration—so far as possible. For example, a portrait lens with actual lenses of aperture $\frac{f}{4}$, but with a fixed stop reducing this aperture to $\frac{f}{6}$ or ^{f}, may at once be rejected. The same may be said of a "rapid landscape" lens with aperture reduced by a fixed stop to $\frac{}{11}$ or $\frac{}{12}$.

Definition.—The next step is to test the defining power of the lens with full aperture. A camera with very fine ground glass should be used, and the image should be magnified with one of the eyepieces commonly used for focusing. Some clearly defined object is selected—a steeple clock is an excellent one if the disk be of a light color. This is focused in the center of the plate. The image should appear quite sharp under the magnifier. At the maximum apertures mentioned in the last chapter, a lens is at once to be condemned if it show any want of sharpness of the center of the plate; to be strictly correct, I should say in the axis of the lens under the ordinary focusing magnifier. A really good lens will show no falling-off under a magnifying power ten times that of the eyepiece commonly used by photographers.

Correction for Chemical Rays.—The lens having proved satisfactory in the two points just mentioned, we may proceed to test it for the coincidence of chemical and visual focus. It may be here mentioned that appreciable want of this coincidence is not a very common fault even among second-rate lenses of the present day; but with older lenses, in other respects of the very highest quality, it is by no means uncommon. Indeed, some of the best opticians were, at one time, in the habit of purposely leaving an appreciable residuum of chromatic aberration, because more perfect correction of certain other defects could then be made. It was in those days customary to allow for this by either having the plane of the plate in the dark slide a little different from that of the ground glass, by racking the lens a measured distance after focusing, or by introducing during the time of focusing

a supplementary lens of very long focus, so as to shorten the focal length of the whole combination by the precise amount due to the want of correction. Such things would not be put up with at the present day, and a lens which shows want of coincidence between chemical and visual focus must at once be condemned.

The method of testing is as follows: A row of cards, or of other similar objects, is placed upright in a line so nearly behind each other as is compatible with seing a number written on the top part of each to distinguish it from the others. There may be, say, seven cards, with a space of six inches between each two. The camera is placed at a distance of, say, 15 feet, and card No. 4, that is to say the central one, is carefully focused. A plate is placed in the dark slide, and a photograph is taken with full aperture of the lens under examination. If, in the photograph, card No. 4 appears the sharpest, the result is satisfactory. If, however, a card either in front or behind appears to be sharpest, the lens must be condemned. It is assumed that the ground glass and the dark slide are in perfect register.

To Compare Lenses as Regards Flatness of Field, Marginal Definition, etc.—We shall suppose that two lenses of about equal focus have stood all the tests mentioned, and that it is desired to discover which of these is on the whole the best. Let us suppose them both to be portrait lenses.

The camera is placed opposite to some object consisting of well-defined vertical and horizontal lines. An old-fashioned window frame makes an excellent object. Modern plate glass window frames show too few lines.

If the lenses have different maximum angular apertures, that which has the largest aperture must be stopped down, so as to have the same as the other. The image is made sharp in the center of the plate, and the falling off of the definition toward the edges is observed, first one lens being used, then another. It will probably be found most convenient to take a photograph by each lens, and to compare the images. That lens which shows the least falling-off of definition at the edge is the best. Should the falling-off be about equal, but in one case be in the form of ordinary blurring, in the other in the form of astigmatism, the lens which shows merely blurring is to be preferred, as the fault can be corrected by the use of a small stop, which astigmatism scarcely can. If the lenses appear equal as regards falling-off of definition, that which has the largest maximum aperture is the best.

To Test for Distortion.—If it be suspected that a lens gives distortion, a weight should be hung with a fine cord, so as to get a straight vertical line; the camera should be placed opposite to this at some distance, with the length of the ground glass vertical, and should be turned till the image of the string falls quite on the edge of the plate. A straightedge is now applied to the ground glass to discover if the string is represented as a straight or as a curved line. If the latter, the lens distorts.

To Measure the Angle Included by a Lens.—The camera used for the purpose must be of such size that the lens cannot quite cover the ground glass. The smallest stop is inserted in the lens, a bright distant subject having been focused, and the diameter of the circle which is illuminated is taken. As it is sometimes very difficult, with a very wide angle lens and a small stop, to see the image of those portions of a landscape which fell near the edge of the circle at all, it will probably be best to proceed as follows:

The sun is focused on the center of the plate at some time when it is pretty near the horizon. The smallest stop is inserted, and the camera is slowly swiveled till the image of the sun disappears. The spot where it was last seen on the ground glass is marked. The camera is now turned in the opposite direction, and the spot where the image of the sun was last seen is again marked. The distance beween the two marks is the diameter of the circle covered. To tell what the angle is the following construction is made: A line, A B, is drawn = the focal length of the lens. At B a line, B D, is erected perpendicular to A B, this line if produced. B D and B C are each made = radius of the circle. A C and A D are joined The angle, C A D, is then measured with a protractor or otherwise, and

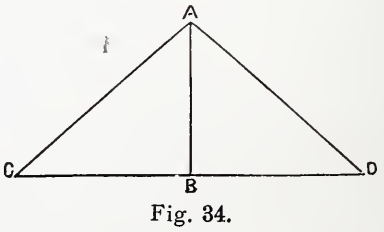


Fig. 34.

is the angle of the diagonal of the largest plate that can be used. To discover if the lens will cover any given size of plate, the circle is drawn out on paper, and it is found by actual experiment whether or not the plate will come within it. For example, the diameter of the circle is 16 inches. It is desired to find if a plate 12 x 10 will come within it: the plate is laid on the circle, and it is found that it just comes within it. Again, a plate 13 x 11 is tried, when it is found that it does not come within the circle, but that the corners project beyond it.

If it be wished to discover the angle subtended by the base line of the plate—the actual angle of view—the construction shown in Fig. 32 is repeated, but C D is made equal to the length of the plate in place of to the diameter of the circle. Thus, in the case imagined, it is made 12 inches in place of 16 inches long.

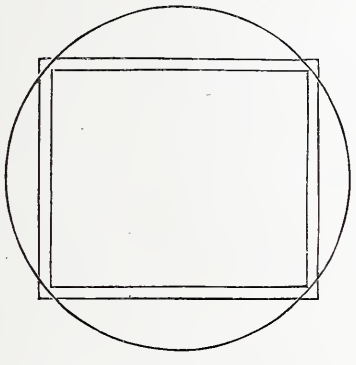


Fig. 35.

It is to be observed that lenses advertised as having an angle of view of fully 100 degrees and so forth never have anything of the kind. A lens to have such an angle of view would require to cover a plate of length about two and a-half times that of the focus of the lens. Thus a lens of 5 inches equivalent focus would have to cover a plate 12 x 10. An angle of about 80 degrees is the largest ever included in practice, if we leave out of consideration certain obsolete forms of lens, such as Sutton's water lens.

To test the definition given near the margin of the circle illuminated by a very wide angle lens, it is necessary to make a negative of some well-defined subject, in a plane at right angle to the axis, and at some distance from the lens, using the largest plate that the lens will cover. The image on the ground glass is always too dull to judge by.

ABOUT THE REDUCING PROCESS.

In the description of the process for reducing the intensity of over-dense negatives, which was published in the Times of August 28th, p. 427, *et seq.*, I did not think it necessary to give formulas, and to enter into the details of the manner of operating, for the process is based on so simple chemical actions that any one having the most elementary notions of chemistry can at once understand them, and make the alterations useful to avoid the failures to which certain products may originate by acting on organic substances.

As explained in the first paper, the process consists in converting the thin layer of metallic silver forming the image into chloride, bromide or certain cases into iodide. Now this can be done in several manners: By attacking the silver, 1st, by a weak solution of the hydracides (about 4 per cent.) and of an oxidyzing agent, nitric acid or potassium dichromate; or, 2d, by a solution of bromide or of iodine (the latter in alcoholized water), both these metalloids directly uniting to the metal, or by an aqueous solution of ferric chloride (1 to 2 per cent.), which converts the silver into chloride, it being reduced to a ferrous salt, etc.

The latter manner to convert the silver into bromide or chloride is, no doubt, preferable for the chemicals employed cannot produce blisters, etc., as do the acids which may even entirely disorganize the gelatine film if employed in large doses Moreover, the action is more rapid than with acids, and, nevertheless, under perfect contract.

After the treatment with ferric chloride, the film should be rinsed, then immersed for a moment in a 2 per cent. solution of citric acid, then thoroughly washed to eliminate all traces of the iron salts, dried in the dark, insolated, etc.

I regret not having completed the first description of the process by these short but sufficient instructions in order to point out certain failures which may occur in working a new process.

P. C. Duchochois.

PHOTOGRAPHY IN CHINA.

A Correction.

I regret to have a correction to make in a formula recently sent to The Photographic Times, which is no doubt already published, although it will be some time before it reaches this side of the world. I believe I copied the wrong formula from my notes. The correct one is as follows:

Stock Alkali Solution.

Soda carbonate (cryst.)	135 grains
Soda sulphite (cryst.)	225 grains
Water	10 ounces

To each ounce add

Pyro	$\frac{2}{3}$ grains

or,

Eikonogen	$\frac{1}{3}$ grains

The proportion of sulphite in this developer is just sufficient to keep the liquid of good color, and to prevent staining of the fingers. If more alkali is added the liquid will discolor when development

is prolonged. I prefer to make the stock-solution of double strength, and to dilute it just before use, as large bottles are not then required. This plan offers the further advantage that for quick shutter exposures the stronger stock-solution is about as strong as the plates will stand without frilling.

I had the pleasure of speaking before the Tientsin Association on Friday evening, April 3d, upon flash-light photography. I had only the magnesium powder and some gun-cotton. This was flashed from the top of a stove in the office in the U. S. Consulate. A sheet was held so as to reflect the light upon the president and secretary at the table, who were just then supposed to be engaged in a little quiet conversation. But the president was so astonished at the flash that he moved. He must have moved very suddenly too. He said he did not expect such a sudden illumination—a great pity, because he spoiled the picture. The flash was not indeed extremely quick, for 20 grains of magnesium were burned.

There are about twenty members of the local society, and not a little interest in photography.

R. Hitchcock.

A LANDSCAPE.

A PHOTOGRAPHER stood mid the waving corn,
Swept by the rose-scented breezes of morn,
And the flame-red poppies carressed his feet,
And the hedges were blooming with meadow-sweet.

The river shone through a silvery mist,
And a white-winged bark by the waters kissed,
Floated now in shadow and now in sun
Through the shifting veil which the fairies had spun.

The wind fanned the wheel of a picturesque mill
That stood in the village on top of the hill,
And over the scene the warm sunshine flowed,
And the ripening harvest quivered and glowed.

The "artist" his camera called into play,
Striving to carry a picture away
Of the landscape dressed in its robe of green,
And crowned by the sunbeams with golden sheen.

So of river and village and vernal glade
A photograph was instantly made,
And its beauties gladdened the eye and heart
Of the lover of nature and student of art.

K. E. B.

The Shah of Persia is said to be an enthusiast with the camera, and takes very good pictures with it when he condescends to do so. Wherever he goes he is accompanied by a court photographer, who takes views of everything that interests the Shah.

Notes and News.

Councillor Mariot was a remarkable example of the many-sidedness which is only too uncommon in the modern world. Educated as an artist, he began life as a journalist at the age of seventeen, and with considerable success, too. He then took to the stage, and after attaining a good reputation as an actor, he undertook the management of three different theatres at the same time. Herr Mariot practiced and studied photography with signal success almost from the time of its first discovery. Gradually, but certainly, Herr Mariot's reputation in this new line of activity grew and increased, and in 1867 he was presented with a special gold medal by the emperor for his successful photographing of the Adelsberger cave by means of magnesium light. For his exhibits at the Universal Exhibition in the same year, he was presented with the Knight's Cross of the Order of Franz Josef. His later years were mainly occupied in developing the collotype industry.—*The British Journal of Photography*

The Zeiss Objectives.—With regard to the Zeiss objectives, we learn from a communication to the *Photographische Correspondenz* that in the triplet apochromate all the glasses employed, with the exception of the flint glass, are pure silicate glasses, the durability of which has often been tested, and proved equal to that of the best crown and flint glass. The borate flint which is employed in the middle for correcting the triplet is, owing to its chemical composition, a glass of very great delicacy, which, however, in temperate climates, is not likely to affect the combination, as the glass is enclosed in the middle of the system.

A Modification of Silver Chloride.—At the meeting of the Paris Academy of Sciences, held on July 13, M. Guntz read a paper on *The Action of Light on Silver Chloride.* The experiments indicate that, when a thin layer upon a plate of glass is exposed to light, it is, in the first few moments, only colored very slightly; but, if it is then placed in ferrous oxalate, the chloride is reduced with formation of metallic silver. Even in the absence of light the author has succeeded in producing a modification of silver chloride, which is directly reduced by the oxalate solution. To obtain this modification it is merely necessary to boil silver chloride for some hours in the absence of light. If, on the contrary, silver chloride is left for some time exposed to the light, it takes a violet-red tint and loses chlorine. The silver subchloride formed in prolonged exposure to light yields, on further reduction, metallic silver. A layer of silver chloride after exposure to the light consists of three super-imposed layers—metallic silver, silver subchloride, and unaltered AgCl.

We are glad to be able to report that the price of platinum has recently been sinking very considerably, says the *British Journal of Photography*. We understand that this is due to the operations of the syndicate in buying the platinum ore, which we described some time back, having defeated the very object with which they were undertaken. Having raised the price of platinum 100 per cent., the result was to throw all the old platinum in existence into the market—all those having old evaporating dishes, crucibles, and other precious vessels came and sold them—and so the prices began to drop apace.

THE AMERICAN PRIZE PRINT INTERCHANGE.

THE California Camera Club has sent out the following circular:—

Your earnest attention is called to the following rules and resolutions, adopted by the club at the last meeting of its Directors, held August 4, 1891:

FIRST.—*Resolved*, That this club take measures to establish an Annual Prize Print Contest among its members, and to establish an International Prize Print Interchange, in accordance with the following:

SECOND.—*Resolved*, That the club invite and earnestly urge its members to send in mounted and unmounted photographs of every description.

THIRD.—*Resolved*, That three annual prizes be offered by the club for the three best prints turned in during each calendar year, such prizes to be of value, and to consist of something connected with photography.

FOURTH.—*Resolved*, That these prize prints, and the prize prints of other clubs in the Interchange, be placed permanently on the walls of our club rooms, with names of makers and dates attached.

FIFTH.—*Resolved*, That a public exhibition be given each year of the prints turned in during the year, and all prints not winning prizes be kept in suitable portfolios, under care of the librarian, and open for inspection at all times by club members and visitors.

SIXTH.—*Resolved*, That an executive committee be appointed, with full power to act on these resolutions, and that they appoint judges to receive and take charge of prints and award prizes thereon.

SEVENTH.—*Resolved*, That the executive committee be instructed to take prompt measures toward the establishment of a national organization to be known as the American Prize Print Interchange. Each club in the interchange to forward to each and every other club in the interchange a copy of each of its three prize prints within sixty days of the award of prizes. The pictures to be placed on the walls of each club's rooms, and properly marked with names of clubs sending them, and dates of awards.

The president, Mr. Geo. W. Reed, then appointed an executive committee, consisting of Messrs. Edward L. Gifford, H. B. Hosmer, and E. P. Gray.

In accordance with resolutions adopted August 4, 1891, the executive committee met August 7, and made the following

RULES TO GOVERN ANNUAL PRIZE PRINT CONTEST.

Rule 1. Any active member in good standing may enter any kind of photographic print in this contest.

Rule 2. The print must be the actual work of the member sending it, and from negative made by himself during the year of the contest only. No prints from negatives made during years previous to this contest will be accepted.

Rule 3. Each contestant will send in one or more prints mounted to suit his own individual taste, and one unmounted copy of the same.

Rule 4. Contestants will put no names of any kind on their prints, but fill out carefully the blanks provided for the purpose.

Rule 5. All prints to be sent to the Executive Committee of Annual Prize Print Contest, addressed to the Club Rooms, Academy of Sciences buildings, and must all be sent in before December 1st of each year.

RULES TO GOVERN THE AWARD OF PRIZES AND AWARD COMMITTEE.

Rule 1. The judges of award will meet at such times and places as they may deem advisable.

Rule 2. They will take charge of and judge all prints sent in, and will not allow them to be inspected by any one whomsoever, and will keep their own counsel regarding them.

Rule 3. The envelopes containing names and titles are to be kept with the prints and not opened till day of award.

Rule 4. The judge will decide the merits of the prints by the following points: Originality, 30; artistic beauty, 40; mechanical perfection, 30; total, 100 points. The print winning the greatest number of points will take first prize.

Photographic Societies.

COLUMBUS CAMERA CLUB.

ON September 3d the Columbus Camera Club revived its meetings after the summer vacation. From the work which was exhibited it was evident that the members had not been idle. The last outing was productive of the "lion's share" of work shown. This outing was to "Ohio's Wonderland," situated in Highland County, where the Club found a paradise, for which an everlasting debt of gratitude is due Mr. C. H. Collins, a prominent citizen of that county. He traveled over, mapped out, and prepared a list of subjects worthy of the camera's attention, for the entire trip through an extremely picturesque section of Ohio.

The cliff-lined streams, broad fertile valleys, lined with mountains of modest proportions, numerous caves, rapids whose sparkling waters danced in the sunlight, an occasional mill with overshot wheel, the ox-team, shaggy dog, and bare-footed driver, and the "bare-footed mountain maid," all combined, proved to be a camera's "happy hunting ground."

The photographs, together with the experiences and incidents as related by those who were on the outing, were very interesting and much enjoyed.

The communications which had accumulated during the summer were read and such action as was deemed necessary taken, after which a short paper was read on club work, with suggestions for the coming season. A systematic arrangement was decided upon whereby each member will have something to do, and in this way there will be something definite provided for each meeting.

At a late hour the Club adjourned with a desire that each meeting of the year be as interesting.

J. N. Bradford.

THE CHAUTAUQUA PHOTOGRAPHIC EXCHANGE CLUB.

MEETING of August 20, 1891.

Resolved, Students of C. S. P. desiring to join the Club will apply to the President, Chas. Ehrmann, who is empowered to deny admission, if in his opinion the applicant is not far enough advanced in photography.

Exchanges presented to the Secretary after the 15th of the Exchange month will not be taken notice of.

Members failing to exchange for three successive terms are excluded from the Club.

Mrs. C. L. Pierce, Secretary.

"ELMHURST," RIVERSIDE, Conn.

The Editorial Table.

Manipulation of the Microscope. By Edward Bausch. Rochester, N. Y.: Bausch & Lomb.

This publication contains much valuable information for beginners in microscopy. The student embracing photomicrography will find it a useful hand-book.

Der Silberdruck und das Vergrossern Photographisher Aufnahmen. Ninth Edition. Dr. Paul E. Liesegang. Düsseldorf: E. Liesegang.

The ninth edition of this standard work is augmented with a description of all the newer printing methods, photochromy, collodion and gelatine chloride of silver printing and toning, as well as the making of enlargements by sun and artificial light.

Der Photographische Apparat und Dessen Amvendung. Ninth Edition. Dr. Paul E. Liesegang. Düsseldorf: E. Liesegang.

A thoroughly revised, almost entirely new edition of a very instructive book. Much attention is given to the describing of several of the most popular hand cameras, to reproduction apparatus, and the copying of works of art.

Both of these books belong to the extensive Liesegang series of books on photography, and are distinguished by clear type and excellent illustrations.

Die Photographische Retouche in Ihrem Ganzen Umfange. Vol. II. Wilhelm Kopske. Berlin: Robert Oppenheim (Gustav Schmidt).

The second volume of the book treats principally of the artistic and anatomical parts of what the photographic retoucher ought to know. An abundance of valuable information will be found in the chapters "on light" and "on perspective," and those on the anatomy of the human body are highly interesting to say the least.

Handbuch der Photographie. Vol. IV. Photographiche Kunstlehre oder die Künstlerisdem Grundsätze der Lichtbildnerei. Professor Dr. H. W. Vogel. Berlin: Robert Oppenheim (Gustav Schmidt).

This well-known handbook now appears in a thoroughly revised and much enlarged form. American photographers of German extraction, and others, appreciate it sufficiently to need our special recommendation. The present edition surpasses in value all its predecessors, and, we sincerely hope, a conscientious translator may now be found to make it accessible to all photographers not acquainted with the German language.

A pleasing feature of Vol. IV. is the large number of very excellent and artistic illustrations.

Die Elemente der Photographischen Optik. A Supplement to Vogel's Handbuch der Photographie. Dr. Hugo Schröder. Berlin: Robert Oppenheim (Gustav Schmidt).

A very clear, comprehensive, but scientific treatise on the subject.

Good books on photographic optics being very rare, we call the attention of our readers to the above.

Record of Photographic Patents.

454,518. Developing Dish for Photographers. Alexander Doyle, New York, N. Y.

454,560. Transparent Pictures. John McNevin, Brooklyn, N. Y.

454,844. Photograph Album. Alfred W. Brewerton and Miecislaw R. Szameit, Chicago, Ill.

455,245. Manufacture of Pyroxyline. Hilaire de Chardonnet, Besançon, France.

455,954. Apparatus for Coating Photographic Plates with Emulsion. John H. Smith, Low Fell, Gateshead, England.

456,396. Marking Device for Photographic Negatives. Benjamin A. Blackmore; Staunton, Va.

456,555. Photographers' Retouching and Marking Apparatus. Charles ———, Minneapolis, Minn.

456,673. Coin-Controlled Photograph Apparatus. Frank Martin, Newark, N. J.

456,842. Photographic Camera. Enoch W. Perry, Jr., New York, N. Y.

456,869. Instrument for Calculating Photographic Exposures. Alfred Watkins, Hereford, England.

457,712. Process of Photographing. Israel H. Hamberger, New York, N. Y.

457,817. Method of Preparing Photograph Plates. Oswald Moh, Görlitz, Germany.

457,857. Photographic Camera. Daniel J. Tapley, Newtown, N. Y.

458,128. Photographic Camera. Charles Mills, New York, N. Y.

TRADE MARKS.

19,965. Paper—Sensitized Preservative and Adhesive Monogram. K. & W. Automatic Rapid Photo-Printing Machine Co.

Queries and Answers.

136 HILDA M.—Why are the tones produced by the commercial combined fixing and toning bath of a greenish-black, and the whites of a yellowish tinge after having been used for some time.

136 *Answer.*—Exhaustion of gold, too many prints toned in the same solution. The manufacturers claim to tone correctly from forty to fifty 5 x 8 prints with one bottle of the combined bath. If it is attempted to tone still more the above described effects are inevitable. These tones are sulphide tones, and the prints are probably insufficiently fixed.

137 L. K. M.—What kind of lenses is better adapted for landscape work, the wide or the narrow angle lens?

137 *Answer.*—Narrow-angled lenses of long focus are most suitable for landscape work, especially for distant views. They do not exaggerate the foreground and dwarf the distance as very wide angle lenses do, and though they include a much smaller angle of view, the subject is rendered in far better proportions.

138 D. P. A.—How can Pizzighelli platinum paper be restored, after having assumed a gray color, in consequence of being stored in a damp room.

138 *Answer.*—If you have much of the paper, send it to a refiner, if but little throw it away. Restoring is impossible.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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Commercial Intelligence.

WE are very sure that it would pay every manufacturer and merchant to advertise in the PHOTOGRAPHIC TIMES ANNUAL for 1892, which will be issued December 1st, with a guaranteed circulation of Sixteen Thousand copies. It is possible that it may be increased by a second edition, as has been the case with some of the former issues—if so there will be no additional charge for extra advertisement. This book is ordered by many of the Colleges, Standard Libraries, etc., as a text book, and complete files are kept by the government.

Sample copy will be submitted for your inspection if desired.

THE SCOVILL & ADAMS CO.,
Publishers.

CHICAGO, September 9th, 1891.

The Henry Clay Camera, with pneumatic release to shutter, reached us to-day, and served as a sample just fifteen minutes, then it was sold and carried away, so we want another one just as soon as possible for you to send it.

DOUGLASS & SHUEY CO.

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WE have received a small quantity of this new and promising developing agent, and offer samples of it at the rate of 25 cents per 1 gram.

THE SCOVILL & ADAMS CO.

MESSRS. SCOVILL & ADAMS CO.

Gentlemen: * * * "I have one of your 5 x 8 cameras, and like it very much." ELMER WHITE,
22 School Street, Holyoke.

Sept. 7th, 1891.

Studio Changes.

Willows, California. The gallery of W. B. Cook was damaged by fire.

Antigo, Wisconsin. R. J. Leutsger has sold out.

Business Notices.

$250 WILL BUY one of the finest galleries in Colorado. County site; population 3,000; no opposition; cabinets, $4.50. The greatest health resort in the State. Stock at invoice prices. A chance in a life-time.
Apply GEO. DALGLEISH,
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FOR SALE.—Improved 5 x 7 folding Kodak, made for both Roll-holder and Plate-holders. Cost $75.00. Price, $55.00. For particulars, address C. M. BROCKWAY, 33 Worth Street, New York.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

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BUCHANAN BROMLEY & CO., Philadelphia.

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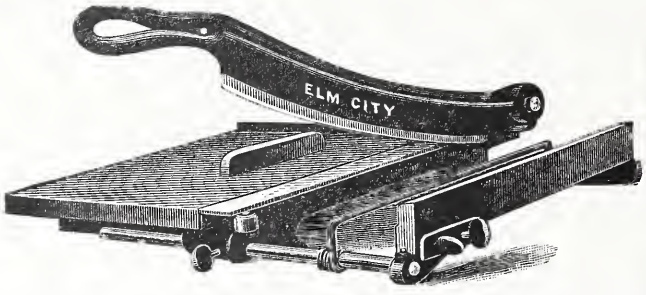
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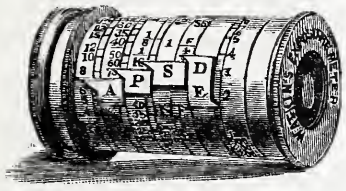
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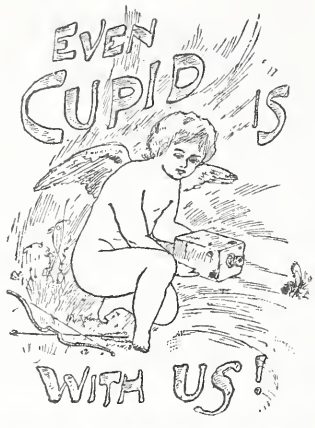
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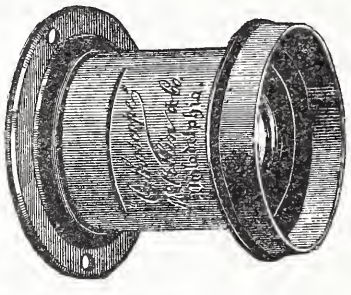
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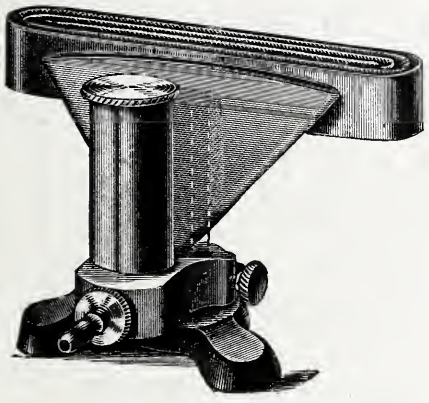
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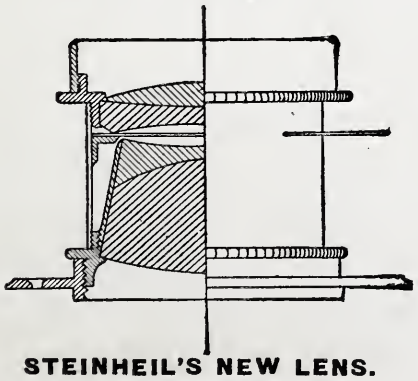
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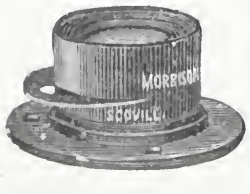
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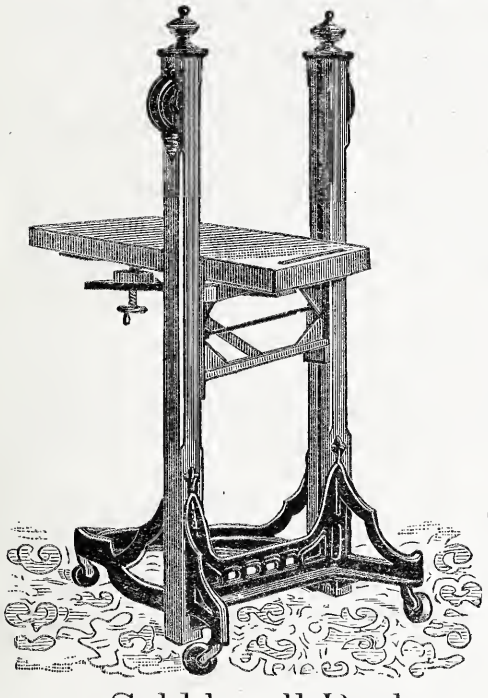
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10..1½	"	...20x24 "	...22 " ...	" 80.00	
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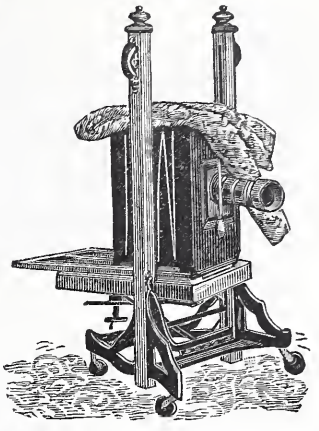
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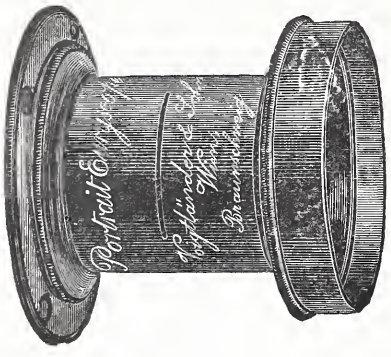
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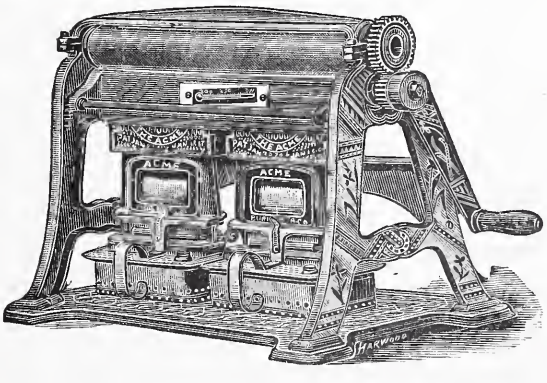
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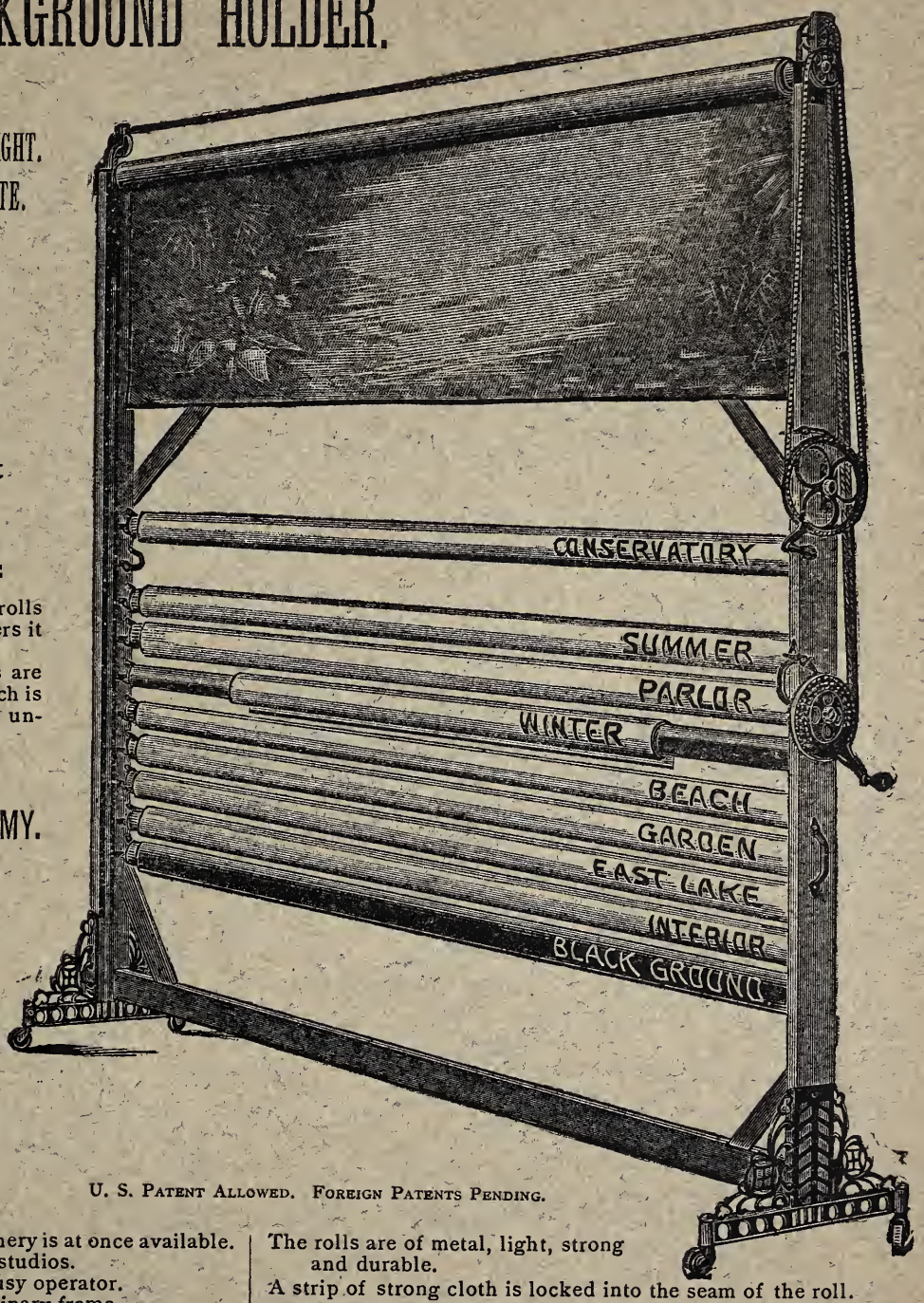
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Grounds cannot unroll in brackets, nor while being elevated.
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There is nothing about it liable to get out of order.
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The castings are double japanned.
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Securely packed in the knock-down.

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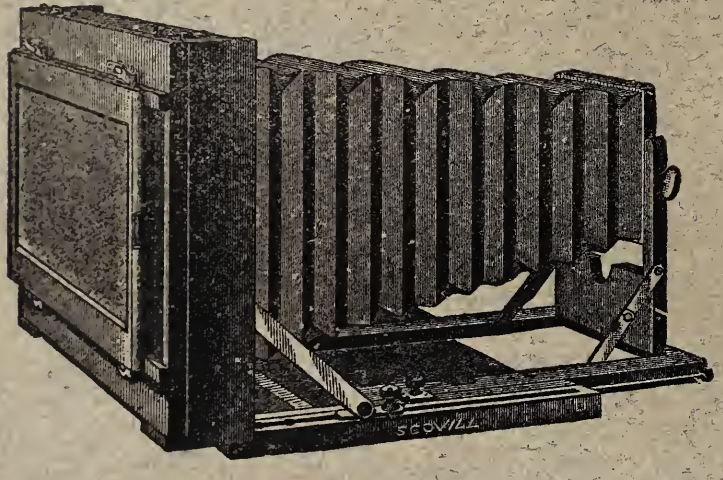
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One of the best features of the camera is the absence of detachable screws. An idea of this is conveyed by the illustrations showing the camera when extended and when folded.

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4x5	$27.00	6½x 8½	$40.00
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In order to convey an adequate idea of the lightness of these cameras, it is sufficient to say that the 5x8 size camera, with ground-glass in frame and holder, weighs only 3 lbs.

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GEORGE WILLIAM CURTIS.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, SEPTEMBER 25, 1891. No. 523.

GEORGE WILLIAM CURTIS.

WE have real pleasure this week in presenting our readers with the portrait of George William Curtis, "that fearless knight of reform," as he has been called. In the *Christian Union* of July 18th appeared a portrait of Mr. Curtis and an accompanying editorial from which we reprint the following extract. Nothing could be more fair:

It would be unjust to George William Curtis to call him the American Addison, for this would deny him that individuality of character which is always the trait of a true man, distinguishing him from all masked imitations. Mr. Curtis is always graceful; he wears grace not as a garment, but it is bodied forth, as the simple expression of a soul that is gracious. But it always is, if it does not always appear, the grace of an athlete. His chosen sobriquet, "The Easy Chair," does him scant justice. Whether he wrestles or reposes, he is equally at ease, and he throws an antagonist in combat as gracefully as he chats with a friend. As an essayist he is the lineal literary descendant of Addison, and Steele, and Lamb, though he is as little like either as they are like each other. As an orator he is America's most finished and faultless speaker, with the perfect form of an Edward Everett or a Wendell Phillips, but inspired with a more intense earnestness than the former, and restrained by a greater sobriety of judgment than the latter. His political editorials have put "Harper's Weekly" at the head of our political periodical literature, by a strength without passion, and a style without artifice.

But it is as a man that George William Curtis will be remembered after his writings have been forgotten; for his pen has been so busy serving the present time that it has had no leisure to work for the future. His courageous honor has made him the leader and almost the creator of that body of independents who have put National honor above party victory, and who, by daring to be independent of political platforms, have effectually rebuked those politicians who have dared to be independent of moral principles. As a political leader his place should have been in the Senate of the United States, where, indeed, he might have been had he been less worthy to be there. Though he can no longer be called a young man, whether life is measured by years or deeds, he is the leader of the young men, who gladly claim him as their own; for his heart never grows old.

The portrait was made by Gutekunst, of Philadelphia, in that series of eminent Americans, of which we have already had the pleasure of showing our readers two or three conspicious examples. They are all models of portraiture, worthy the study of the best professionals. The excellent phototype reproduction was also made by Mr. Gutekunst.

PHOTOGRAPHY FOR THE YOUNG.

THERE are three instruments always sure of an enthusiastic reception when presented to the healthy American youth—the gun, the fishing-rod, and the photographic camera.

These three instruments completely supplement each other and are always harmonious companions. The pleasure to be derived from the use of the first two is enhanced and enlarged by the presence of the third, and the camera will be found, in many instances, to take the place, even, of its companions. It possesses many capabilities which they have not.

It is a much more difficult thing, as well as more exciting, to "bag" a quarry on its native heath with the camera than with the rifle or gun. It requires more skill, a cooler head, and steadier nerves. Not only must the hunter approach nearer his game without exciting its alarm, but the light must be in a proper direction (either from behind or at one side), and the difficulties of surroundings, such as intervening trees, and so forth, must be carefully and dexterously avoided, in order to "shoot" live game with a camera.

Many an experienced hunter who carried a camera into the woods, first, merely as an accompaniment to his rifle, later left the rifle at home, or carried it simply as a means of obtaining food, while the hunt after pictures of his game became of the first importance. Mr. Ernest Ingersoll has told of the veteran hunter of our great National

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Park, who gave up the rifle for the camera because, as he said:

"I find that one can get more excitement over taking the picture of an elk or a buffalo than it would be if killing was the object."

And then there are always interesting photographs to be made about the hunting camp. The hunters with their guns, fishing tackle, dogs, etc., picturesquely grouped in characteristic attitudes before the camp, make an attractive picture. The "bag" itself is recorded by the camera better than in any other way; and the photograph of a phenomenal "catch" will substantiate a "fish story" among one's friends, on returning from the woods, when nothing else will avail.

The photographs made on a hunting or fishing tour are often invaluable for illustrating purposes. It may be that the amateur photographer is somewhat of a writer as well, and if so, his photographs will greatly increase the interest and value of his narrative. Not only in the woods does the camera render valuable aid in this respect, but on any excursion or expedition. Photographs of regattas, made from the deck of a fleeting yacht, in the race, are always of the greatest interest.

Some years ago a veteran photographer in the White Mountains, who was also a keen sportsman and lover of all manly out-of-door recreation, devised a camera which combined in one instrument, to a great extent, picture-making qualities and those of the rifle. He called it the "Gun" camera, and under that name it has been largely made and sold. It consists of a 4 x 5 camera mounted on the end of a short wooden gun stock, and so connected that by means of a wire string extending from the "drop" shutter to the trigger, aim can be taken, and an exposure made by the simple movements necessary in the use of an ordinary gun. With this camera our veteran photographer and hunter has secured pictures otherwise quite impossible.

There is no time to set up a camera on the tripod, carefully focus, remove the slide, and deliberately uncap the lens, when a frightened stag is bounding across the brief open space of a wood-road and dashing into the copse on the other side; but a gun camera can quickly be brought to the shoulder, and the shutter released by means of the trigger, in ample time to secure a fine picture. The photographs of flying birds even can be secured in this way by the skillful; and no end of the most interesting pictures are to be made which will at once suggest themselves to the bright American youth.

Photographic work for girls need not differ essentially from that of their brothers. There are always innumerable interesting pictures to be made outdoors, which a girl can photograph quite as readily, and often with more taste than a boy. There are the household pets to be portrayed, groups of the family and school friends, flowers, trees in blossom, and general landscape work that does not require too great a physical effort. The use of the camera out of doors will bring the rose of health to cheeks which have long been pallid from too close confinement. It strengthens the muscles, cultivates the taste for all things beautiful, and trains the eye and the brain.

Those delightful associations, "camera clubs," as they are called by the older one, may be formed, in which both boys and girls may be members, and each help the others in the sport, and add greatly to the pleasure of all. Little excursions may be undertaken in this way which would be impossible for one or two alone, especially for the girl members. Places of historic interest in the neigeborhood may thus be visited, and various pictures secured which will be of more than passing interest as the old landmarks disappear. In connection with Agassiz societies and other organizations of a semi-studious character, these useful camera clubs can assist the main object in a very enjoyable manner.

The study of photography in itself, as a scienec and an art, may be followed with the greatest pleasure and benefit, and it helps in almost all of the customary studies of youth. Photography requires a knowledge of chemistry, of optics, and of physics, and interests and helps the student in these three studies, while the regular lessons at school make him or her a better photographer. Then there is the art side of photography, which is an interesting study in itself. Like the study of music, the field for improvement is unlimited, and one may always look to something better and higher; but, unlike the other arts, the beginner can quickly acquire the necessary rudiments and take advantage of all the achievements which have been accomplished before him.

A PHOTOGRAPHIC MERCHANT HONORED.

A PHOTOGRAPHIC merchant has received one of the most important positions in the appointment of the President. Senator Francis Hendricks, well known to all photographers as head of the firm of Francis Hendricks & Co., of Syracuse, has been appointed Collector of Customs for the Port of New York, to succeed J. Sloat Fassett, the Republican Nominee for Governor. Mr. Hendricks was

himself spoken of as a nominee for the governorship, and has for many years been an important personage in New York politics. He is one of the most prominent business men of Syracuse, and his life there, social, business, and political, has been a success from the start. He was Mayor of Syracuse for two consecutive terms, has served two terms in the State Assembly and three terms as Senator, declining the renomination for the fourth time. Mr. Hendricks was Chairman of the Senate Committee on Cities. He is a friend of U. S. Senator Hiscock, and has for years successfully managed all his campaigns. Besides being the head of the firm of Francis Hendricks & Co., he is President of the State Bank at Syracuse, and of the Trust and Deposit Co. at Onondaga.

In our issue of August 28th, we spoke of a number of other photographic merchants who had been honored by political offices We might have mentioned in addition to General Sargent, of Cleveland, and Mr. J. W. Morrison, of Pittsburgh, a still more conspicuous figure in politics Thomas C. Platt was for many years connected with the photographic business, and a member of the Scovill & Adams Company tells us he has made out many a bill to him for photographic goods purchased from the Scovill Manufacturing Company in old days.

A WORTHY OBJECT OF CHARITY.

The recent fire which destroyed the old Commercial and Advertiser building, corner Fulton and Nassau Streets, New York, apart from having caused the loss of the edifice and its contents, and of at least two lives, utterly destroyed the stock, tools, and all belongings of the veteran and renowned optician, Mr. Charles F. Usner. Unfortunately Mr. Usner had not taken the precaution to insure his stock, hence the total loss of his entire plant has left him utterly destitute The photographic fraternity throughout the United States is indebted to Mr. Usner for some of the best lenses, especially of the portrait class, ever made by an optician at home or abroad, and the intelligence of his loss will be received with profound sympathy by the craft at large. It has been proposed that a fund be raised to aid Mr. Usner in his extremity, as he is no longer young, and has a family depending upon him for support. His loss has nearly prostrated him, and it is quite doubtful whether he will be able to resume lens-grinding again. Until more definite plans shall have been reached with a view to aid Mr. Usner, The Photographic Times will gladly receive and acknowledge such contributions as may be sent to this office for Mr. Usner's benefit.

THE CHEMISTRY OF SILVER PRINTING.

CHAPTER IV.

Reduction of Density of Photographic Negatives, etc.—Chemistry and History of the Processes Employed.

Meaning of the term "Reduction."—As usual in photography, the word "reduction" has three distinct meanings. It may mean reduction in size; or reduction to the metallic state; or reduction in density. It is in the latter sense that the term is used here. In chemistry the word *reduction* is used in a totally different sense, and is taken as the equivalent of "deoxidation," or the removing of oxygen from a compound. To avoid all confusion, some writers on photography prefer to substitute "weakening" for "reducing." For reducing agents *weaken* the image, and render it less dense.

Necessity for Reduction.—During the development of a negative in the dim light of the photographer's dark-room, it is very easy to make the mistake of developing the negative *too much.* After fixing, the negative then presents a black and nearly opaque appearance. It prints badly, and so slowly that days of exposure to sunlight sometimes fail to produce the desired effect.

The same thing may happen in the production of positives upon glass (transparencies, or lantern slides); also in the production of developed prints (bromides or platinotypes); or even in the case of ordinary silver prints.

The remedy—partial or complete—in all these cases is *reduction.* It may be that the negative, etc., is too dense in certain parts only; we must then resort to *local* reduction.

Reduction Easier than Intensification.—It is generally acknowledged that the most difficult point in development, is to know exactly *when to stop.* On the whole, it is better to over-develop rather than to stop development too soon. In the latter case, not only may density be wanting, but all the detail may not have been got out. It is found, too, that better results are obtained from a negative which has been reduced than from one that has been intensified.

What Hardwich Meant by "Reduction."—In all the nine editions of Hardwich's "Manual of Photographic Chemistry" (1855–83) he uses the term "reduction" in its chemical sense. As he points out clearly enough, a developing agent is—chemi-

cally speaking—a "reducing" agent; that is, it causes a separation of some metal—almost invariably *silver*—from the non-metallic element or elements with which it may be combined; and this "reduced" silver then composes the photographic image or picture.

Thus Hardwich's reduction is not *our* reduction. Nor have we been able to find, in his once-popular and largely-read book, any term which is equivalent to *reduction* when it means the lessening of the density of a negative, etc.

We can only explain this by remembering that the *need* for such a method was not anything like so great with collodion as with gelatine. The worker with collodion *built up* his picture by the aid of plenty of yellow light, and by the addition of silver to the developer. He could tell exactly when to stop. Moreover the collodion negative was, as a rule, developed at the time and at the place when and where it was taken. And if the negative did not turn out well, it was cleaned off the glass and another exposure made The wet collodion worker *knew what he was taking home.*

The text-books of Hunt, Lake-Price. etc., contemporary with the earlier editions of Hardwich, agree with that author in neglecting to treat of reduction.

"Reduction" of Residues.—Another example of the use of the term "reduction," in its *chemical* sense, is the way in which it is universally applied to the converting of photographers' residues (which contain gold, silver, etc.), to the metallic state. Perhaps some future photographic congress will issue a revised nomenclature of words employed technically in our art, so that each term shall have a fixed and definite meaning.

Reduction Processes Used in Collodion Times.—Still, the photographic periodicals of the wet-collodion times (1853–79) show us that reduction was not uncommonly practiced, at all events during the latter half of that epoch. One favorite reducer appears to have been a solution of iodine with iodide of potassium and cyanide of potassium. The iodine attacked the image, converting some of its silver into silver iodide; and this was then dissolved away by the cyanide.

Mr. R. Kennett gave the following formula in 1879:* "Take cyanide of potassium, 10 grains; water, 1 ounce; to this add crystals of iodine as long as any will dissolve. With a camel-hair brush, paint this over the parts to be reduced. Then wash well, and dry."

Mr. Stillman states† that the same reducer is good for gelatine films. He writes: "I put enough of the usual solution of iodine with iodide of potassium, with the quantity of water required to flood the plate copiously, to give it a good port-wine color, and then add a concentrated solution of cyanide of potassium until the color disappears and is replaced by opalescence." The plate to be reduced is soaked in water, and then placed in the above solution till reduced. The dish must be rocked frequently. Mr. Stillman adds.: "I have reduced a plate over-intensified by carelessness in the mercury solution until it had become perfectly orange and imprintable, without stain or marking, or losing the most delicate detail. But the plate must be carefully washed between all the operations; and leave no trace of the hypo in the film."

Ferric Chloride as a Reducer.—When a solution of ferric chloride or "chloride of iron" is poured upon a negative, it combines with the silver of the image to form silver chloride, which, being white and translucent, lowers the density considerably. The action which takes place may be represented by a chemical equation:

$$\underset{\text{Silver}}{Ag_2} + \underset{\text{Ferric Chloride}}{Fe_2Cl_6} = \underset{\text{Silver Chloride}}{2AgCl} + \underset{\text{Ferrous Chloride.}}{2FeCl_2}$$

(*and* … *produce* … *and*)

The silver chloride must be removed by placing the (washed) negative in an ordinary fixing bath of hypo; and the negative is then to be finally washed and dried.

The difficulty in this method is to know exactly when to remove the negative from the ferric chloride bath. The best plan is to use a glass dish, and watch the reduction carefully by the aid of light reflected upward through the bottom of the dish from a looking glass placed at an angle beneath.

The strength of the solution of ferric chloride is not very material; it should be of the color of sherry wine, which may be produced by adding 4 grains of the solid chloride to every ounce of water. Two or three drops of hydrochloric acid to each ounce of water is also an improvement. About five minutes in this solution will be sufficient to effect a moderate reduction; followed by ten minutes in ordinary hypo solution. If the reduction is not found sufficient, the negative must be well washed and the process repeated. The method is also useful for clearing yellow stains, etc., from negatives, and for removing surface fog.

W. Jerome Harrison.

(*To be continued.*)

*"Photo News Year Book," p. 67.

†"British Journal Almanac," 1883, p. 142.

COPYING OF LINE ENGRAVINGS ON COMMERCIAL DRY GELATINE PLATES.

THERE can be no question to-day that the dry gelatine process, the success of which was so much doubted no less than ten years ago, has practically conquered its predecessor, the old collodion wet plate, in all branches of photographic industry, with the only exception of the reproduction in black and white of line engravings and similar work, which requires negatives of great density in the whites, and of clear glass for the minutest lines and dots of the original to be copied.

As I have no doubt that in course of time the "dry gelatine" process will ultimately conquer also this difficulty, I will briefly state my mode of operation in this direction, which has given me results fairly approaching the wet collodion cliché. My experiments may offer nothing original, but they may be the means of eliciting from more competent experimenters, as f. i., Carbutt, Duchochois, Ehrmann, etc., their views on the subject and the results obtained. (Remember that I always have a commercial dry plate in mind, and not one especially prepared for the purpose by individual workers).

My mode of operation: I use Carbutt's slow B plates, expose in diffused gallery light for ten to fifteen seconds. For development I use the well-known soda potash formula of Carbutt ("American Annual," No. 37), with this variation, that I first immerse the plate in the A (pyro) solution for a minute or two, before adding B (soda) in the proportion of one-fourth to A. Develop to full strength, so that after-intensification will not be necessary. Fix in new hypo, wash well, and immerse into an alum bath, acidified by citric acid for a minute. Then give the final washing. If the glass is perfectly clear the negative may be strengthened if necessary by the merculiar intensification. If not, let it alone and print in the shade or under tissue paper.

Karl Klauser.

ANOTHER WOMAN'S VIEW OF IT.

THE article in THE PHOTOGRAPHIC TIMES, August 21, 1891, leads me to say: that thirty years ago, the writer received as a gift, from Berlin, Prussia, two cups and saucers, manufactured from the finest porcelain. On each cup is a portrait photographed, showing most exquisite workmanship. This art is an old one across the water, as inventions and discoveries go now-a-days.

"A Woman's View Of It," expresses as much truth as poetry. The writer has a son, given to experimental photography. My closets are chemical store-rooms, and the pantry even has to yield its tins, glass jars, etc., etc. One is almost afraid to step heavily, for fear of retarding some extra fine development.

The marble basins are utilized for some sort of water process, and the different members of the family are constantly being pressed into service, to furnish figures, to which the garden or lawn is the setting. So enthusiastic is the young artist, no time is given for a change of raiment, so we, many a time, pose in our work-a-day suits, making groupings caricatured. Even now, I must lift my pen from the paper, to examine and give my opinions on a family picture. Although we all have had our "pictures took," once and again, art has as yet been enriched by no very valuable additions from "our camera." Latent talent may develop, some of these bright days, and THE PHOTOGRAPHIC TIMES may immortalize a choice bit of our own developing. My son had his camera as a birthday gift, and the pleasure and interest it has given to him can never be told. If any parent wishes to have a home-loving boy, let him "go and do likewise." A love of photographic art leads to habits of observation, both indoors and outdoors, making life all the sweeter and purer. During the leisure hours of boyhood, weeds take deep root, and if good wheat is not sown in the early morn of life, the tares of discontent and unrest mature.

Amusement boys must have, and when camera in hand they take their outings, hunting for some choice sun-lit corner, to preserve as a home-comer, one may be sure, that although "boys will be boys," such boys are developing character as well as a love of art.

Photography seems quite the correct thing for women. Not always in a business sense, but as a delightful pastime for women of culture and refinement. The love of nature is a benediction, let not all outdoors be as a closed book, for fear of sunburn and tan. Robust health makes a queen of any woman, and when the brain guides the eye and hand, hospitals and insane retreats will have half-closed doors.

Let our albums be crowded with views from mount and stream, views fixed by Sol himself, as souvenirs of those cloudless days, as with friends we strolled hand in hand over the rough and smooth in search of choice bits of nature's own.

[*Mrs.*] *S. Roessler.*

SHE HERSELF

FULL many people sat to her.
She took their pictures all with care.
But ah, the fair photographer
Was far the prettiest picture there!

PHOTOGRAPHY IN THE TROPICS.

[From the Report of the Total Eclipse of the Sun, observed at Cayenne, December 22, 1889.]

A FEW suggestions may not be out of place bearing upon the practical side of making photographic negatives in the damp and hot regions of the West Indies and the northern part of South America. The same conditions seem to prevail for at least 20 or 30 deg. of latitude. Heat and dampness have been considered to be conditions most dangerous to the keeping of dry plates, and manufacturers frequently caution purchasers to keep the plates in a dry and cool place. One who has not visited such a place cannot understand the excessive dampness which pervades everything, and the extreme discomfort produced by a temperature even lower than 90 deg. Clothes and shoes mold over night in the sleeping-room, and nothing ever seems to get dry, except the newcomer, whose thirst is perpetual. If these conditions had been fully considered before leaving home, the boxes of plates would have been packed in such a way as to exclude them from the outside air; but this was not done, and until the plates had been repeatedly tested, it was feared that they might have received some injury. As soon as possible after arriving at Cayenne a dark-room was made for developing, and a large number of plates which had been exposed about Cayenne and before reaching there, were developed. There was no evidence of any kind that the plates had suffered any deterioration. Several boxes of unexposed plates were brought back, and these, when used, appeared to be in their original condition. Some 8 x 10 plates exposed in Trinidad, on the return trip were placed in a box containing two unexposed plates. When an opportunity occurred to develop these plates, some time after returning to Mt. Hamilton, the two unexposed plates had been forgotten, and one of them was placed in the developer. No image appeared; the tray was placed on the rocker and the development was kept up for at least an hour, and perhaps for an hour and a half. Then the true state of the case was suspected, and the plate was rinsed and put away to dry. Some days later it was put in the camera and exposed, and as fine a negative made of the large telescope as anyone would wish to have. This certainly would not have happened with either a poor plate or a damaged one.

With the chemicals the change was apparent. The sulphite of soda, though taken in the original bottles as sealed by the manufacturer, had absorbed so much moisture that that which was originally a fine powder had become a solid mass, which could not be dug out of the bottle with a sharp steel implement, and could only be broken out by first breaking the bottle. The carbonate of soda fared much the same way, notwithstanding the packages were in their original sealed condition; and the hyposulphite of soda continued to absorb so much moisture that there was always in the vessel in which it was kept several ounces of saturated solution. Of course in such a state the usual quantities of carbonate and sulphite of soda, weighed for making up developer, became quite uncertain from the addition of an unknown quantity of water; and the best way of developing with the chemicals in this condition was thoroughly learned by making a great many exposures in and around Cayenne, and experimenting in the develoment until the best proportions were found. In going to a climate like this, all chemicals which have a tendency to absorb moisture should be carefully sealed with wax, or in some other way made air-tight, and particularly hyposulphite of soda, which should be hermetically sealed in a substantial package; otherwise this chemical will become saturated, and the excessive water will escape if possible, and perhaps damage other things. Of course plates, and chemicals which might injure them, should never be packed in the same box. It is always better to take the necessary developing materials, and develop the plates as soon after exposure as possible. Many things will spoil an undeveloped plate which would not injure a negative. This is with reference to the ordinary landscape views.

For special exposures and photographic work of particular value, it goes without saying that the plates should in all cases be developed on the spot. There is nothing to lose by this course, and everything to gain. To say the least, it is dangerous not to do it; and no one would pretend to say, after developing a flat and weak negative, which had been transported a long distance after exposure, that the result would not have been entirely satisfactory if carefully developed at the first.

S. W. Burnham.
J. H. Schaeberle.

The photograph has many uses. Among others it serves to remind one of his unalterable ugliness and thus keeps his vanity in a state of collapse.—*Truth.*

MOUNTING ENAMELLED PRINTS.

One of the greatest drawbacks to enameled prints is their tendency to come loose from the mounts. Only a small margin at the edge of the picture can be pasted without removing the glass. If raised in the center with cotton wadding they are not fit for albums; besides the wadding helps to break the picture loose from the mount. If left flat they will "kink" in the center when straightened if they are very concave on the back. It is best to mount the print on thin cardboard before enameling. This is done with ordinary starch paste.

After the print has been enameled and removed from the glass, trim to proper size, cover the back all over with "non-cockle." mounting solution, lay in position on the mount, cover the face with a piece of thick cardboard, and place in letter-press with considerable pressure for a minute or two, until the mountant has time to set, and they will not come loose nor will the glace be injured in the least.

J. R. Swain.

PHOTOGRAPHING THE QUEEN.

Never before had the dusty plains of Aldershot seen such a vast concourse of people as that which assembled to witness the great Jubilee Review in 1887. I had just become the proud possessor of a camera, and although I had never had a lesson or even read a book of instructions, I was bent on securing photographs that day which should be handed down to my posterity as historical pictures.

As I arranged my paraphernalia I fancied myself, twenty years hence, a proud father sitting amidst a large family, explaining to them the pictures in my carefully arranged "historical album."

"Yes, my lad, that's a sketch of *El Teb*, and here is one of *Tamai*, both taken by Villers, who accompanied us on that awful expedition.

"And here's one of which I am proud; its a photograph of the great Jubilee Review which I took myself just as the royal party passed me. That corpulent looking gent behind the Queen's carriage was at that time Prince of Wales, but is now King Albert I." I was aroused from my reverie by a shrill blast of trumpets sounding the "preparatory."

Before the troops were drawn up in review order, I had the privilege of photographing the officers of one of her Britannic Majesty's royal corps. No pains were spared in selecting a picturesque site, or in posing the group. "One moment, gentlemen," I said, as I capped the lens after the first exposure; "I would like to take another just to make sure." A minute later the second picture was taken and the double holder with its latent treasure carefully put away.

The review ground was roped in and white gloved sentries guarded the enclosure. Vehicles of all kinds, from a four-horse dray to a wheelbarrow, were arranged along the entire length of the line, just immediately outside the ropes. So dense was the crowd that a seat on an apple cart brought its proprietor from one to five shillings.

I planted myself down between an apple cart and the ropes, placing my camera on a large lunch basket. In that position I patiently awaited the coming of Her Majesty. The tremendous cheering of the multitude signalled her approach. What a picture this would be! I fairly chuckled over it. On came the royal party along the sandy track, the Queen's carriage first, then the Prince of Wales and the great generals, with the usual appendages of royalty bringing up the rear.

Only fifty yards away now, and all was ready. The excitement accelerated my respiration considerably; one sharp focus, the carrier inserted, my hand on the cap—then, horrors! a great fat woman (weighing 200 pounds if she weighed an ounce) dropped off the wheel of an apple cart and flattened my camera and lunch basket as flat as pancakes.

I shall never forget the picture she presented as she entirely hid my apparatus. Her hair was inclined to be red and her face was lighted up at this moment with the same brilliant hue. Before attempting to rise, she turned her fierce-looking optics on me and ejaculated: "The hidea ov yer proppin' up them devilish bull's eyes aneath persons! Why don't yer go home to yer mammy and get a doll?"

Crestfallen, I picked up the shattered fragments, while the crowd laughed themselves hoarse and the massed bands played "God Save the Queen."

The thought that I had taken two pictures of the group of officers gave me considerable consolation. On the morning after the review I proceeded to develop them, not however before I had eagerly devoured the instructions on developing. Oh, with what anxiety I shook the solution over the first plate! Slowly the figures began to appear—Halloo! Great Cæsar! Here's a fellow with medals on his legs; another with two heads; medals, stars, legs, heads, all hopelessly mixed together. I had taken two pictures on the one plate. I neither meddled nor muddled with photography for years after that.

A. F. Irvine.

Fashions in Photography.—"Oh, girls!" cried Amy Toure: "Papa is going to get me a camera, and I'm going to have it *so* pretty! I hate black, and so I'm going to have it lined with pink."—*Puck.*

Notes and News.

Count Luigi Primolo, the son of Brincess Bonaparte and a chieftain among the Italian Bonapartists, is acquiring celebrity as an amateur photographer. His most famous achievement was in securing a picture of the pope during a recent ceremony in the Vatican.

Veterans Meet.—The One Hundred and Thirty-Second Pennsylvania Volunteers, of which Col. V. M. Wilcox was commander, held their annual business meeting Friday morning, September 18th. Dr. R. W. Wilcox, Sergeant-General of the Sons of Volunteers, son of Col. Wilcox, presented the Volunteers with a handsome flag in an eloquent speech. At three o'clock the same day the battle-field exercises of the regiment took place at the position the regiment occupied during the war near Bloody Lane. Here Col. Wilcox made an interesting address to the comrades of the association.

Miss Catharine Weed Barnes' second illustration in her series of three pictures which competed for the Grand Prize at Buffalo, appears as a frontispice to the "American Amateur Photographer" for August. It is entitled "The Song of Love and Death," and is in the series illustrating "Lancelot and Elaine"

N. C. Thayer, for many years well known to the photographic fraternity as an enterprising merchant in photographic goods, has completely recovered from the illness which compelled him to dispose of his business some time ago, and he is about to resume it again at his former premises, 263 Wabash Avenue, Chicago.

Mr. G. Waldon Smith, the well-known photographer, has recently opened two new studios at Portland and Old Orchard beach. The latter is for the summer only and has been remodeled and refurnished in very dainty style. The Portland studio is a very valuable acquisition, and promises to be the leading establishment of its kind in Maine, occupying as it does an entire building in the most central business portion of that city.

John R. Clements, the veteran manufacturer of mat sarface and leatherized salted paper, was 70 years old Sunday, September 13th. "I was born at noon Thursday, September 13, 1821," writes our old friend, "at Rednor, Delaware County, Pa. I am in remarkably good health, and without a pain or an ache." We congratulate Mr. Clements and the photographic fraternity, and trust that he will be enabled to serve them for many more years to come.

A Handsome Portrait of J. Sloat Fassett, the Republican candidate for Governor of New York, and for a brief period Collector of the Port, is contained in *The Illustrated American* for the week ending September 19th, and will be regarded with interest by those who have followed his striking career within the last few weeks.

A Downtown Society.—The old Story regarding a proposition to organize a downtown Society of Amateur Photographers has again been revived. If some one who has plenty of time would go ahead and organize the body they would find plenty of material about the architects' offices and among the newspapers on Park Row for memberships. A floor in some building near the City Hall, to be devoted entirely to dark and work-rooms, would be a great boon to the many reporters who use photography as an adjunct to their business.—*N. Y. Times.*

A New York Institute of Photography.—There is some talk among the amateur photographers of New York of making an effort to secure a permanent building somewhere near the center of the city in which to found an Institute of Photography, where those desiring instruction in the art could secure it from competent masters. This would be a grand scheme if it it could be brought about, as the majority of amateurs are self-taught and all are lacking in some essential principle in the practice of the art.

Charged with Being a Spy.—An American giving the name of Carleton Graves, stating his business to be that of a photographer and his address as Columbia, was arrested at Mayence, Germany, charged with being a spy. Mr. Graves' baggage was seized and searched and he will be detained until satisfactory explanatian as to certain actions of his, classed as suspicious by the German police, were furnished. Mayence is a fortress on the left of the Rhine, opposite the mouth of the Main. It is walled and flasked with bastions, defended by a citadel and several outlaying forts. A bridge of boats connects it with Castel, its suburbs. In default of more definite information and in view of the fact that Mr. Graves gave his occupation as photographer, it is presumed that he may have been taking snap shots at the fortifications of Mayence.

Late Lunar Photographs.—Reports have been received from Professor Holden of the Lick observatory in California that he has been able recently to get some photographs of the moon that are thonght to be superior to any before taken. Objects upon the moon are detected by their shadows and a projection or hill fifty feet high casts a shadow large enough to be seen through Professor Holden's big spy glass. The moon, according to astronomers, appears to be dead, desolate waste of played out volcanoes and lava beds, without atmosphere, and rather short of water and society. Professor Holden, however, thinks he has detected the presence of snow on one of the high mountain peaks of old Luna. This has rather astonished him, as well as the observatory people in this city. If it should be demonstrated that snow falls on the sattelite, the accepted waste theory would be upset, and the moon would be studied with new and greater interest.

Kodaks Stolen.—Joseph Mayer, a dealer in photographic materials and apparatus at Nos. 68 and 70 Spring Street, Newport, R. I., writes that he had a No. 5 Kodak, No. 6,174, and a No. 4 Kodak, No. 9,052, stolen from his place. If any trace of the missing Kodaks should be found by any of our readers, a favor would be conferred upon Mr. Mayer by communicating with him.

We have received the following notification on a postal card, and take pleasure in making it public through the columns of THE PHOTOGRAPHIC TIMES:

NEWPORT, R. I., September 14, 1891.

Stolen from Newport, R. I., on the afternoon of September 10th, 1891,

Two Kodak Cameras, described as follows:

One No. 4 size, numbered 9,052, and the other, No. 5 F size, numbered, 6,174.

Stolen by a man near 40 years of age, about 5 feet, 8 or 9 inches in height, thinish face, slim built, weight about 150 pounds, fair complexion, sandy hair, blonde moustache and small side taps, wore spectacles (probably for the occasion), good talker, had on dark clothes and derby hat, had every appearance of a gentleman.

Arrest thief if found, and any information of the articles indicated, please notify

HENRY E. TURNER, JR.,
CHIEF OF POLICE,
Newport, R. I.

Lieutenant Frederic A. Ober, one of the World's Fair Special Commissioners to South America, has written that he has secured in San Domingo photographs of the bones alleged to be those of Christopher Columbus. He is inclined to question that the remains are genuine. He also had made a *fac-simile* of the historic cross of one of the cathedrals in that city from material that was put in the building in 1514. These and many other relics he will bring to the Exposition.

Correspondence.

THE N. P. A. AND THE P. A. OF A.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sir: I read with considerable interest the article by John A. Tennant in *Wilson's Photographic Magazine* for September 5th, on "Similarities and Contrasts—a Retrospect," for he seems to be in possession of certain facts that are not generally known, or at least are not spoken of in these days.

Mr. Tennant must have had facilities for going even deeper into the facts of the old N. P. A. had he felt inclined to avail himself of them. He might have compared, for instance, the expenses of running the old N. P. A. with those of the P. A. of A.

The P. A. of A. was undoubtedly upset by a ring of stock dealers, as has been claimed. The old N. P. A. was accused of being run by the photographic merchants, but as a matter of fact was managed entirely by photographers and in the interest of photography. The exhibition managed by Ryder, of Cleveland, which netted the Association between $2,000 and $3,000, is a model which any new association may well work under.

The P. A. of A. has certainly had some very enthusiastic, hard-working officers, and they should be chosen to manage the new association. A man like Dr. Carlisle, for instance, could run the whole association as manager probably at one-fifth the expense which has been incurred during the Conventions of the P. A. of A. But we can't expect Executive Committee men at this age to work for nothing and pay their own expenses as the Executive Committee of the good old N. P. A. invariably did.

I agree with Mr. Tennant that the comparison of the P. A. of A. with the old N. P. A. may be made with much profit, and I sincerely trust that those who form the new association will maturely consider the methods employed by the old N. P. A. in formulating their rules and regulations. Fraternally yours,

K., (*An Old N. P. A.*)

CAMERAS STOLEN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Your favor of the 15th inst duly received. Please accept my thanks for your offer to make the thing public. I may state that I have letters from a prominent firm of photographic merchants of Boston, and from another firm of Providence, stating that they had been victimized in the same manner, and from general appearance by the same party, who is evidently making a speciality of Kodak Cameras. I will give you an account of my experience with him, which he worked in exactly the same way as he did the others, and you can use this if you see fit. The goods were stolen on the 10th. He called in two or three days before that date and saw cameras; on the morning of the 10th he again called and had a look at our stock; about 4.15 he called and asked if we could send some one to the hotel, as he wished to show them to some lady friends. On getting to the hotel he finds his friends are getting dresses fitted on. He takes up a camera which they generally like very much, then he takes up the other one, and that is the last of him. In the case of the Providence firm they sent a 5 x 7 Kodak and a Hawk-eye. He took the Kodak, but brought back the Hawk-eye and said it was too clumsy. A general outline of the business might be of use to your readers, as he will more than likely call on some of them in his travels.

Yours very respectfully,

Joseph J. Mayer.

NEWPORT, R. I., Semtember 16, 1891.

DIPLOMA FOR TASTE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I see in the columns of your journal that mention was made of my receiving the bronze medal in Class C (A. H. of A. Convention), but no note that I received the diploma for the most tastefully arranged exhibit in Class K. I thought possibly, as one of your subscribers, you would be pleased to know that fact.

Respectfully,

Geo. Steckel.

LOS ANGELES, Cal., August 21, 1891.

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In my communication about the "Rational Method of Reducing the Intensity of Negative Cliches," there is an error on page 427, line 32, in the August 28th issue of your magazine. Instead of "their layers" one should read "thin layers."

There is another error on page 428, line 24, instead of "idohydic" read "iodhydric."

Very truly yours,

P. C. Duchochois.

NEW YORK CITY, September 1, 1891.

Well Taken.—Jack Kamerer: How can you ask me to help you with this confounded photography, when you know I am waiting for an answer to my proposal.

Miss Hypo: Haven't I just handed you two negatives? —*Puck.*

Photographic Societies.

NORTHERN TASMANIAN CAMERA CLUB.

THE second annual meeting of the above club was held at Mr. R. L. Parker's rooms, St. John Street, Launceston. Mr. R. L. Parker occupied the chair. The minutes of the previous meeting were confirmed, and some correspondence was read.

The secretary read his report, in which he stated that during the year the number of members had increased from 28 to 36. The meetings had been fairly attended, considering so many members reside in the country, those meetings especially being in favor at which lantern work or practical developing formed the principal feature. A field-day was held at Westbury in January, when a goodly number of members attended, and a second excursion covering two days took place in March; the scene of operations on the first day being Latrobe, the second Devonport. Through the kindness of the president (Dr. H. A. Roome), Messrs. Wm. Aikenhead, P. C. Maxwell, John Sykes, and- others, these excursions were most enjoyable, and the hearty thanks of the club are due to these gentlemen, whose kindness and thoughtfulness made the excursions so successful. As a means of improvement in practical work these field-days are most useful.

Two prize competitions have been held during the year, the first in "indoor portraiture," in which Mr. William Aikenhead took first certificate, Mr. F. Styant Browne second, and Mr. R. L. Parker third. The second competition was in "objects in motion," in which Mr. William Gibson, Jun. secured first certificate, and Mr. F. Styant Browne second. Mr. S. Spurling acted as judge in both these competitions. The circulating albums have been most successful, members contributing freely and regularly, and the change in the rules permitting the member obtaining the most votes to retain the album has met with universal approval. During the year albums have been awarded to Messrs. William Aikenhead, P. C. Maxwell, and F. Styant Browne. The exhibitions of lantern slides, made by members from their own negatives, have been most interesting, and were much appreciated. Recently his Excellency, the Governor, has kindly consented to accept the position of patron to the club. The returns of income and expenditure were submitted to the treasurer's statement, and although the expenses had been heavy the report was very satisfactory, as when some outstanding subscriptions have been collected a credit balance will remain. The journals subscribed to by the club have been in good demand, and books, etc. were kindly donated from time to time by the President and other members.

At the conclusion of the reading of the Secretary's and Treasurer's reports, office-bearers were elected for the ensuing year, with the following results: President, Mr. R. L. Parker; Vice-Presidents, Mr. P. C. Maxwell, Mr. A. C. Bonner; Committee, Rev. A. H. Champion, Mr. R. Kermode, Mr. F. W. Stewart; Secretary, Treasurer, and Librarian, Mr. F. Styant Browne. Hearty votes of thanks were accorded to the retiring President (Dr. Roome), and to the Secretary (Mr. F. Styant Browne) for their services during the past year.

It was decided that a club exhibit should be prepared for the forthcoming Tasmanian Exhibition; that the date of meeting in future should be the third Wednesday in the month, instead of the second as heretofore; and that each member should be entitled to bring two ladies to the lantern evenings. An exhibition of members slides closed the evening.

The Camera Club have reason to be pleased with their continued prosperity, and taking into consideration the growing taste for the artistic and fascinating pursuit of amateur photography, there is every prospect of the club growing much larger before the next annual meeting.

The California Camera Club gives a pay exhibition Friday evening, September 25th, in order to enable the club to complete its present comfortable and commodious quarters, by placing in them a set of modern photographic apparatus, complete in every detail.

The Annual Outing of the Photographic Section of the American Institute took place at Fort Lee, Thursday, September 17th. There were only about a dozen members present, including one or two ladies, on account, no doubt, of the unfavorable atmospheric conditions which prevailed that day; but those who participated in the outing had a pleasant time. The regular annual dinner was postponed until some time during the winter, on account of the unexpected closing of the Fort Lee Park Hotel. It will probably occur some time during the month of January in New York City.

A Fall Outing.—A combined Outing has been arranged between the members of the Newark Camera Club, Brooklyn Academy of Photography, Hoboken Camera Club, and the Society of Amateur Photographers of New York.

The Outing will consist of a trip to New Milford, Penn, (a charming country for landscape photography), leaving on Saturday, October 3d, at two o'clock, and returning Sunday, October 4th, at six o'clock.

The trip will be made in special cars via Erie R. R., and the cost, including railroad tickets, stage ride and hotel expenses, will be $6 each.

The arrangements are in the hands of a competent committee, and everything will be arranged to insure the comfort and pleasure of those who will attend. As the number of tickets will be limited, an early application accompanied by the cost of ticket is requested.

Amateur Photography at Lake George.—The guidebooks of Lake George affirm that it produces five engagements to one of any other watering place. It is the only resort at which I have found a liberal leavening of men. Elsewhere woman, lovely woman, exists in a proportion that is absolutely cloying; but at Lake George there is actually for each Phyllys at least three attendant Corydons. The favorite amusement here, after flirting, is amateur photographing, and the girl that hasn't been photographed in every possible pose and costume (save a la Boston) is away below par.

The Editorial Table.

Our Illustrations.—Scarcely a number of our magazine comes out but we immediately receive from subscribers and others pleasant words of appreciation of the pictures which embellish its pages. We do not feel called upon to print these appreciative words in the magazine, though they are always gratifying to those having the publication in charge, as printing such testimonials savors too much of self-praise; but occasionally a word is received which would be gratifying to the author of the picture and those who made the reproduction, if known, like the following from Mr. T. Commerfort Martin, editor of the *Electrical Journal*. Mr. Martin writes in regard to Mr. Taylor's "Easton Beach," which illustrated our August 28th issue: "*I want to frame a copy of that print, which is one of the best of some very fine photogravures appearing in* THE PHOTOGRAPHIC TIMES," he says. The "Gossoon," from a negative by H. G. Peabody and reproduced by the Heliotype Printing Company of Boston, which appeared the week previous, also called out an unusual amount of favorable comment from various sources. The public press especially praised it and the method of reproduction, while the yachtsmen who saw it were unqualified in their words of praise. Just before came some appreciative words in regard to Miss Adelaide Skeel's "But a Cat and Butter Maiden." The *Freemont Journal* called it "*a bewitching photogravure from a negative by Adelaide Skeel, a very charming young writer for the magazines, and an enthusiastic amateur photographer;*" while the *San Francisco Call* spoke of it as "*one of the most realistic pictures of country life, in which all the lights and shadows are perfect. The picture is one without a flaw.*"

Child Pictures.—We have long known that our friend and contributor, G. Watmough Webster, of Chester, England, enjoys the reputation of being about the best photographer of children in the United Kingdom, but not until recently have we had an opportunity of judging of his work for ourselves. The four specimens of child pictures which he sends certainly justify his reputation. They are natural in pose and composition, beautifully lighted, and the prints have a softness of tone which we wish was more common in this country. The pictures have a proper amount of detail, and a harmonious gradation which makes the effect very pleasing. We shall hope to show our readers a specimen of Mr. Webster's work before many weeks have passed.

A. P. Webb, of Youngstown, Ohio, is another successful portraitist of children and child life. He sends us four specimens of his work which are very fine. One we expect to bring out shortly as a frontispiece to this magazine, so we may omit further comment until its appearance.

From Reese, of Santa Cruz, Cal., we have received a number of characteristic California views which are very interesting. They are 6½ x 8½ inches in dimensions, and are well printed on albumen silver paper. Reese has a large collection of Western views.

The "New" Portrait of Lowell which *The Writer* brings out in its September number is a copy of the portrait which originally appeared in the July 3d issue of THE PHOTOGRAPHIC TIMES, even to the *fac simile* autograph. It is a slightly reduced copy which has lost considerable in the process of reproduction. The original portrait in THE TIMES was a phototype, and is considered by Mr. Lowell's friends as the best one made of him in late years.

An Omission.—Our enterprising London contemporary, *Photography*, quite regularly pays us the compliment of reprinting matter which has appeared in this magazine, especially notes, and humorous paragraphs, and *sometimes* gives credit for them. More frequently, however, our esteemed cotemporary omits to mention the source from which these notes are obtained.

A Report of the Total Eclipse of the Sun observed at Cayenne, French Guiana, South America, December 22, 1889, by Professor S. W. Burnham and J. M. Schaeberle, has come to us with compliments of those gentlemen. It is illustrated with prints from the negatives which they made during their stay on the Guiana Coast, not only through the telescope, but also of the people and scenes about the station. Our readers will remember the page of these excellent photographs which embellished this magazine several months ago. The suggestions bearing upon the practical side of photography in the tropics in this report are so good we reprint them in another part of this issue.

Photographing in Utah.—Judging from many of the photographs which have been produced in Utah, one might suppose that some conditions existed there to excuse the quality of the work, but we understand from friends there that no clearer, brighter, or better atmosphere exists in the United States than in Utah. Sainsbury & Johnson, 54-56 Southwest Temple Street, Salt Lake City, turn out work which is in every way satisfactory, and proves that good work can be done in Utah. We have already not only commented on the excellence of the photographic work by Savage, of Salt Lake City, but have shown our readers a specimen of it (see previous issue).

Walter McDougall, who has made an enviable reputation as the cartoonist of the *New York World*, and who has contributed a characteristic article on one or two occasions to the columns of this magazine, has written a novel, which is his first attempt in the line of fiction. It is somewhat in the Rider Haggard vein, though it has more an air of probability than the stories of that writer. Mr. McDougall calls his novel "A Hidden City," and in it he describes a city and its inhabitants supposed to be somewhere among the cañons of the Yosemite. An attractive feature of this volume will be Mr. McDougall's own illustrations. An author who can illustrate his own writings certainly has an advantage over one who cannot, for he, if anyone, knows how he intends his heroes and heroines to look. Mr. McDougall's novel is in press of the Cassell Publishing Company, New York, for publication some time in October.

"The Noble Grand."—From a symbolically printed programme of the celebration in commemoration of the 50th anniversary of the institution of the St. Louis Lodge, No. 5, I. O. O. F., which occurred Saturday, August 28th, 1891, we learn that our contemporary, Mr. W. H. H. Clark, is not only a photographer and editor of a photographic magazine, but is a Free Mason, and the Noble Grand of the St. Louis Lodge, No. 5.

A Remarkable Photographic View, made Sunday afternoon on Printing House Square, New York City, looking across the City Hall Park, by H. B. Hubbard, shows the City Hall, the New York terminus of the Brooklyn Bridge, the new World Building, the Times Building, and the buildings in which the *Sun*, the *Tribune*, and the *Press* are published.

The Photographic Image, a Theoretical and Practical Treatise of the Development in Colodion and Silver Bromide Paper Processes, by P. C. Duchochois, will soon be ready. It will be a pamphlet in size and form similar to "Lighting in the Photographic Studios," by the same author.

J. C. Somerville, the enterprising photographic merchant, of St. Louis, called upon us with his son on his return from his vacation. He was looking very well after his period of rest and recreation, and seemed to be much benefited by his trip to the East.

John Carbutt left our office an excellent Omega print from a negative on his new orthochromatic film, Sensitometer No. 25, the other day. These firms are making Mr. Carbutt many friends. Their growth in popularity has been rapid and widespread.

John Haworth, dealer in photographic supplies of every description at No. 641 Arch Street, Philadelphia, Pa., called upon us by his representative, D. R. Hanawald, the other day.

"Ohio in Art," a subscription book is being edited by Mr. F. H. Wilson, son of Dr. Edward L. Wilson, and will be issued early in the fall by Messrs. Welch, Frecker & Co., of New York.

Record of Photographic Patents.

458,663. Manufacture of Flexible Photographic Films. Henry M. Reichenbach and Samuel C. Passavant Rochester, N. Y.

458,699. Photographic Apparatus. Hugo Frümler, Berlin, Germany.

458,907. Magazine Plate-Holder for Photographic Apparatus. Emil Kipper, Adams, Mass., and Enoch W. Perry, Jr., New York, N. Y.

458,979. Plate-holder for Photographic Apparatus. Enoch W. Perry, Jr., New York, N. Y.

458,980. Method of exposing and shifting Photographic Plates or Films. Enoch W. Perry, Jr., New York, N. Y.

458,981. Photographic Apparatus. Enoch W. Perry, Jr., New York, N. Y.

459,411. Automatic Registering Photographic Apparatus. Ellis E. Moore, Syracuse, N. Y.

A Good Turn.—Grace (a pretty amateur): Prepare, Harry, I want to take your photograph. Sit still. There, just turn your head a ltttle.

Harry (very much in love): Oh, you've turned my head sufficiently, Grace!

Queries and Answers.

139 R. E. P. asks: Can you give me a toning bath for black and white prints on albumen paper? I can get the brown, purple, and blue, but cannot the black.

139 *Answer.*—Try No. 100 of Standard Formulas, page 338, "American Annual of Photography for 1891." The tones produced by this bath are of a violet-black.

140 JACOB S.—My positive silver bath, nitrate of silver 1½ ounce, water 16 ounces, and neutralized with ammonia, has turned quite dark and thick from dissolved albumen. How can I restore it to good working order?

140 *Answer.*—Add a little carbonate of soda to the bath and heat to boiling point for several minutes, when the dissolved albumen will coagulate; filter over kaoline if you like, reduce to proper strength with the aid of the hydrometer, when the bath will work as well as one freshly prepared. Owing to the quantity of silver taken from the bath by previous use, the quantity of solution will be much less after rectifying it.

141 N. O. S. has shown us ten 5 x 7 plates out of a dozen, all of which had three dark spots of more or less intensity, but all exactly on the same place. Such a thing has never happened to him, and he wants to know what may be the possible cause of these spots.

141 *Answer.*—Fortunately our correspondent has sent these plates in the original packing box, on the bottom of which we detected three tiny holes, corresponding exactly with the dark spots on the negatives. The intensity of these spots increased, of course, proportionately to the distance of the plate from the bottom of the box, the last plate having the largest and most intense light impressions.

142 M. O. N.—What is the cause of albumen paper blistering?

142 *Answer.*—An alkaline silver bath, or one of insufficient strength, or imperfect coagulation of the albumen film. Air or carbonic acid in the washwater, sudden changes of temperature, are the main causes of this annoying occurrence.

143 MISS FLORA P.—What are the causes of Omega paper blistering, or the film detaching in flakes from the edges of the paper?

143 *Answer.*—High temperature of washwater or solutions used, or a want of alum in the combined fixing and toning bath. Remember the sensitive substance of the Omega paper is carried in a gelatine film, which in high temperature will show the defects described. When handling Omega paper keep wash water and bath cool.

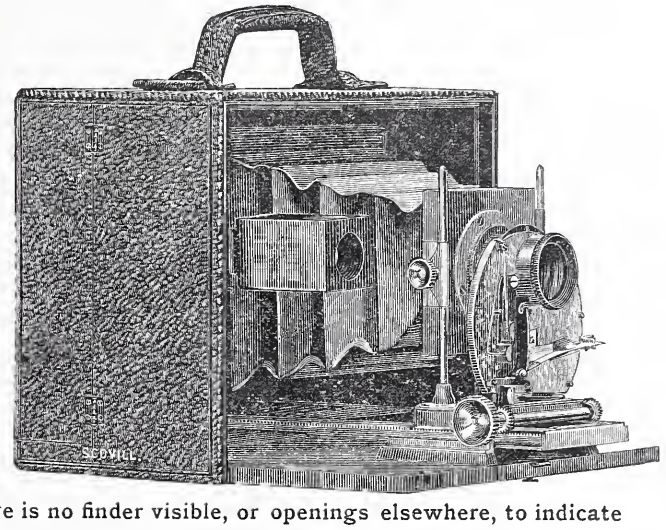
144 BEGINNER.—Is private instruction in photographic practice given in the laboratory of THE PHOTOGRAPHIC TIMES, and what is the tuition fee, if so?

144 *Answer.*—Yes, by previous arrangement, at the rate of $1 per hour.

THE HENRY CLAY CAMERA.

THIS IS THE ONLY DOUBLE SHIFTING AND SWING-FRONT HAND CAMERA.





The case is leather-covered, and when closed there is no finder visible, or openings elsewhere, to indicate that the Camera mechanism is concealed inside.

To open the Camera press on the knob, visible on the front, thus allowing the front to slide, and then swing under the bottom of the Camera. The platform or bed of the Camera is carried with this board, and, by turning the wheel, the bed is made perfectly rigid. It will at once be apparent how the front may be racked outward until the front end of it is over the lines which indicate the focus for various distances. The figure 60 on the focusing scale indicates the focus for 60 feet or beyond. The finder of the Camera is now placed on the top of the front board, and is therefore always at the same angle as the lens: the finder is a reversible one, which may be turned when the Camera is fastened to a tripod, or is held, not with the handle upward, but with the handle on the side in order to secure a vertical instead of a horizontal view. The front board is arranged to slide upward when taking a tall building, church spire, or any high object, and it is also arranged to swing, to still further aid in that endeavor.

By an ingenious arrangement the swing and vertical sliding adjustments may be made to work when the camera is turned over and used horizontally.

One of the advantages of this Camera, when used in the hand, is in the taking of street scenes from an elevated position and having the lines of the building straight while the subjects taken may be near by.

On the same principle, objects situated above the Camera level may be taken by reversing the position of lens and finder.

PRICE.

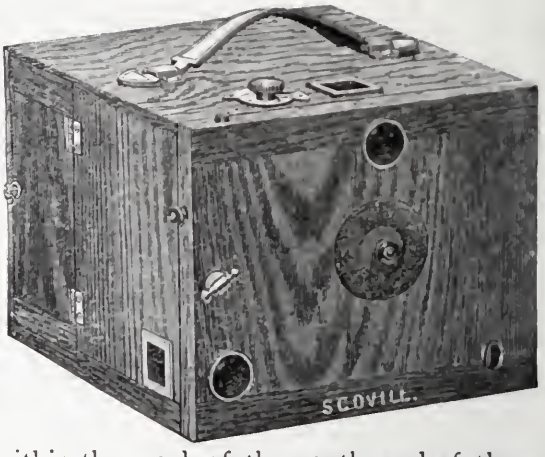
5 x 7 Henry Clay Camera complete, with Instantaneous Lens and Shutter.....	$50 00
Ditto, with Roll Holder and one Double Plate or Film Holder.....	65 00

MANUFACTURED BY THE

AMERICAN OPTICAL COMPANY,

THE SCOVILL & ADAMS CO., Proprietors.

"The 'Knack' Camera is a wonderful instrument for the money." C. A. BOYDEN, Dealer in Photo. Supplies, Worcester, Mass.



IMPROVED KNACK KNACK DETECTIVE CAMERAS

TO MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

In order to demonstrate this, quantities have been eaten at various times. It has often been pounded in a mortar to show that it does not explode.

THE RESULTS OBTAINED BY USING OUR MAGNESIUM COMPOUND HAVE NEVER BEEN SURPASSED.

Price of Scovill Magnesium Compound.

In ounce bottles, with fuses	$0 50
In quarter pound cans, with fuses	1 40
In half " " " "	2 65
In one " " " "	5 00
In five " " " "	20 00

Price of Scovill Magnesium Cartridges.

	Per Pkg.	Per Gro.
No. 1, Small Size, in packages of six	$0 25	$6 00
No. 2, Medium, " "	40	9 00
Large,	75	17 00

The Scovill Squeegee and Print Roller.

Superior to anything in the Market.

The Scovill Squeegee Roller is especially designed to be used in the place of the ordinary Squeegee in working film and paper negatives, bromide prints, for removing surplus water from albumen prints before mounting, etc.

It is neatly constructed with black walnut handle, brass trimmings and a heavily covered rubber roller.

It will be found a very handy tool alike to the professional and amateur photographer.

Price, 8-inch, - $1.00 each.
New size, 12-inch, - 1.50 "



THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¼ inches.
One page, each insertion $20 00
Half page, per insertion 10 00
Quarter page, per insertion 5 00
Eighth " " " 2 50
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Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

NEW YORK, September 21st, 1891.

MERCHANTS AND MANUFACTURERS:

Have you decided that you will be in "The Greatest Annual on Earth" for 1892? If so, there can be no delay in forwarding copy for advertisement, as it must reach us within ten days from this date.

Remember we issue a trifle over sixteen thousand (16,000) copies for the first edition, and should we be fortunate enough to require a second edition will repeat your advertisement in it without additional charge.

Yours truly,
THE SCOVILL & ADAMS,
Publishers.

WE desire to call the attention of our readers who may be interested, to errors in two items of our price list of Swift & Sons Portable Paragon Lenses, as catalogued on page 132 "How to Make Photographs," June issue; also in our catalogue of Photographic Lenses for 1891, page 4, as follows:

Price of No. 2 should read $21 instead of $30.

Price of No. 8 should read $57.25 instead of $52.25.

The reputation of these celebrated lenses is fully sustained in this country, and we are being favored with glowing testimonials from all who have tested them.

Business Notices.

PHOTOGRAPHIC PRINTING METHODS. By Rev. W. H. Burbank. Third Edition. New York: Scovill & Adams Co. No. 22 of the Scovill Photographic Series.

The author may well congratulate himself on the fact that his work has reached a third edition—it attests its value. All the various photographic methods are explained, and practical formulæ are given for all processes. In addition an analytical index is given—a feature which adds greatly to its value. We commend the book to all amateurs who want to get a thorough insight into the mysteries of photographic printing.

PHOTOGRAPHIC REPRODUCTION PROCESSES. By P. C. Duchochois. New York: Scovill & Adams Co. No. 38 of the Scovill Photographic Series.

A new book by P. C. Duchochois, on the production of light impressions without silver salts. This work is of especial interest to engineers and draughtsmen for the reproduction of plans, drawings, etc. In Part II. of this work will be found full instructions in the uranotype and carbon processes, which are well worth the attention of all photographers.—*American Journal of Photography.*

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Streeet, New York.

PARAMIDOPHENOL.

WE have received a small quantity of this new and promising developing agent, and offer samples of it at the rate of 25 cents per 1 gram.

THE SCOVILL & ADAMS CO.

FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

Silver Paper
FRESH DAILY,
Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

FINE BARGAINS.—Improved 5 x 7 Folding Kodak, for Plate-holders and Roll-holder, all complete, cost $75. Price $50. One 4 x 5 Waterbury Detective, with 6 Plate-holders, cost $30. Price $25. One 6½ x 8½ Blair Reversible Back Camera, Darlot W. A. Lens, Case and Tripod, cost $60. Price $30. Address C. M. BROCKWAY, 33 Worth Street, New York.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

☞ LAST CHANCE to get advertisement in the great AMERICAN ANNUAL OF PHOTOGRAPHY for 1892.

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being $2\frac{5}{8}$ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,

163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

"Nothing Succeeds Like Success."

In this connection it is natural to think of ORTHOSCOPE LENSES. There must be some reason why they are selling so rapidly. We think we know why; if you don't, perhaps you will be interested to find out. Other people are finding out, and somehow after they have tried a lens they won't let us have it back. Strange, isn't it? The list which tells about them can be had for the asking.

THOS. H. McCOLLIN & CO.,

PHOTOGRAPHERS' SUPPLIES,

1030 Arch Street, Philadelphia.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address
J. PITCHER SPOONER,
171 Main St., Stockton, Cal.

FOR SALE.—A Mignon Outfit, complete. consisting of a $3\frac{1}{4}$ x $4\frac{1}{4}$ "Mignon" Camera (Am. Optical Co.); 5 double plate holders, a 6-inch Wale "Universal" Lens and double-jointed adjustable tripod, canvas carrying case, etc. All in excellent condition. Just the thing for a tourist or a lady. Cost $60. Will sell for $35.
Address "MIGNON,"
PHOTOGRAPHIC TIMES Office.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
F. F. BRAILLARD, JR.,
423 Broome St., New York.

---

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

NOW READY, MORAN'S BARGAIN LIST No. 37, fourteen pages. Look out for it. Send your address and secure a copy.
R. H. MORAN,
396 Broome Street, New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., Z. T. Benson, and Newcomb & Owen.
JOHN HAWORTH, Manufacturer, Phila.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A middle-aged man, one who understands bromide printing. Address A. L. E., care of PHOTOGRAPHIC TIMES.

A first-class operator for prominent Western studio. Address F. H. H., care of PHOTOGRAPHIC TIMES.

SITUATIONS WANTED.

As a printer and toner and good general assistant. Address F. W. Weis, Marietta, O.

As general assistant in photographic studio, or to work in a photographic supply house, by Lewis C. Westervelt, Bergen Fields, Bergen County, N. J.

A situation by a first-class operator and printer; will send samples. Address G. F. E., Post-Office Box 832, Ithaca, N. Y.

An intelligent German, thorough photographer, not very well acquainted with the English language, desires a situation as printer, fiuisher, or in any other capacity. Refers to Chas. Ehrmann, of PHOTOGRAPHIC TIMES. Address Adam Bunzel, 21 East 108th Street, New York City.

Experienced printer and good retoucher would like to have a situation at once, or would take charge of gallery or tent in a summer resort. Address Louis Silverman, Care Mr. Millstein, 250 S. Pearl Street, Albany, N. Y.

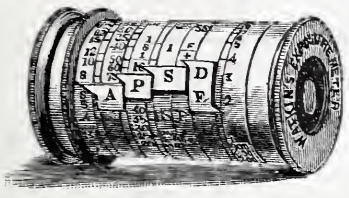
Position wanted as operator in a first-class gallery. Long experience, good references. Address W. F. S., Box 321, Hornellsville, N. Y.

An experienced "lichtdrucker" and photographer would like position, or meet an enterprising capitalist to go into photo-mechanical printing. Address Oscar O. Litzko, 247 Stockton Street, Brooklyn, N. Y.

Young man desires a position as printer and all-around work. Address Joseph H. Roller, 472 N. Fourth Street, Philadelphia.

A permanent position wanted by an operator strictly first-class in every respect; a good all-round man. Understands printing by electric light and copying housework. Only those who appreciate fine work and are willing to pay for it need apply to J. A. Major, 26 W. Grand Street, Elizabeth, N. J.

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THE WATKINS EXPOSURE METER.

IN ENGLAND. *PATENTED.* IN AMERICA.

PRICE.

With one Exposure Ribbon and Book of Tables....$7 50
Extra Exposure Ribbons, each..... 25

This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. Write for testimonials and particulars—free.

For Sale by

THE SCOVILL & ADAMS CO.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,

Sole American Agents for

R. & J. BECK'S MICROSCOPES,

PHOTOGRAPHIC LENSES AND SUPPLIES.

33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*

☞ Send for our New Photographic Bargain Sheet.

BACKGROUNDS AND ACCESSORIES.

The FINEST and MOST COMPLETE LINE made, including everything desired.

SPECIAL DESIGNS in Backgrounds without extra charge.

Send for new books of Photographs.

J. W. BRYANT,
La Porte, Ind., U. S. A.

READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

BEFORE stocking up for the summer's work try the Chautauqua plate.
MONROE DRY PLATE WORKS, Jamestown, N. Y.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

PHOTOGRAPHIC MATERIALS
ZIMMERMAN BROS.
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ELLIOT'S MAILING TUBES.

Photographers will find these Tubes invaluable for mailing unmounted photographs, etc.

PRICE LIST, PER 1000 INCHES:

Diameter.	Light.	Medium.	Heavy.
1 inch	38 cts	$0.42	$0.54
1¼ "	44 "	.52	.63
1½ "	48 "	.62	.75
1¾ "	56 "	.70	.90
2 "	58 "	.80	1.00
2¼ "	68 "	.90	1.15
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2¾ "	78 "	1.15	1.30
3 "	82 "	1.25	1.40

These Tubes, on account of their strength, lightness in weight and uniformity, are strongly recommended for mailing and rolling purposes.

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PAPER MANUFACTURERS, AND WAREHOUSE,

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AMATEUR PHOTOGRAPHIC SUPPLIES,
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Successor to C. L. Littlewood & Co.

JOHN H. DALL,
618 and 620 Clay Street, San Francisco, Cal.
Photographic Supplies.
Established in 1850.

Get Your Sensitized Albumen Paper for 25 cents per Sheet,
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PHOTO PRINTING AND MFG. CO.

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Ohio Agents for Blair Cameras.

ALL MAKERS' CAMERAS
BOUGHT, SOLD AND EXCHANGED
AT
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R. M. Davis.
DENVER.
The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

HOVEY BROTHERS,
156, 158, 160 EAST MAIN STREET,
ROCHESTER, N. Y.
We sell everything photographic. Send list of goods wanted for special estimate.
RED LETTER PRICES.

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O'REILLY 92, APARTADO 213.
HAVANA, CUBA.
Importers of Goods for Photographers, Engravers, and Painters.
Editors of the "PHOTOGRAPHIC BULLETIN."
REFERENCES IN NEW YORK,
THE SCOVILL & ADAMS COMPANY.

THE SCOVILL & ADAMS CO.,
SUCCESSORS TO
Photographic Department, SCOVILL MANUF'G CO.,
PHOTOGRAPHIC MATERIALS.
OFFICE AND SALESROOMS:
423 BROOME ST., NEW YORK.
H. LITTLEJOHN, Secretary. W. IRVING ADAMS, President.

PHOTOGRAPHIC SUPPLIES.
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37 and 39 Court St.,
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GOVAN & CRAMPTON,
Successors to MINOTT M. GOVAN,
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No. 5 Clinton Place,
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CARBUTT'S
EIKO-CUM-HYDRO DEVELOPER.
For Sale by all Dealers.

R. D. GRAY,
MANUFACTURER OF PHOTOGRAPHIC
LENSES,
76 BEEKMAN STREET, NEW YORK.

JAMES S. CUMMINS,
Photographic Supplies,
106 N. Charles St., BALTIMORE, MD.
Everything in Photographic Merchandise required by the Professional and Amateur.

BIGGART SOLAR PRINTING CO.,
58 and 60 University Place, New York.
We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
SEND FOR PRICE-LIST.

Chautauqua School of Photography.

The local class of 1891-'92 opens Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.00.

Cost of Ten Lessons in Portraiture, $10.00.

After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.00.

For particulars apply to
CHAS. EHRMANN, 423 Broome St., New York.

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Carbutt's Orthochromatic Plates.

PHILADELPHIA, August 21st, 1891.

MR. JOHN CARBUTT,

DEAR SIR: The 18x22 Orthochromatic Plates I have been using in my work on the Pennsylvania Railroad are of such fine quality that I feel that I should let you know of it. They possess all the qualities of a fine wet plate and are very uniform, giving graduations in the foliage that I have not seen since I used your "A" Plates in Egypt, Arabia and Palestine in 1881. During a recent trip through Mexico with Mr. John L. Stoddard, I found the Orthochromatic Plates far superior to the ordinary for distant mountains and snow-capped volcanoes, and especially so when using a color screen.

Please advise me when I can expect more of the 18x22 size, as I will soon have used up the four dozen now on hand.

Very truly yours,

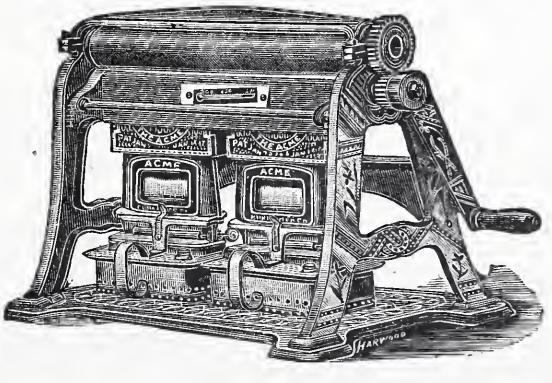
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ACME STATIONARY BURNISHER.

THE ONLY FLUE-HEATING BURNISHER EVER MADE.

Patented January 25, 1876, January 18, 1886, February 28, 1888; also Canadian and European Patents.

This Burnisher stands without a rival in the world for giving a brilliant surface and beautiful finish to all photographic prints.



Eleven Reasons Why You Should Use the Acme Stationary Burnisher.

1.—It is the only Stationary Burnisher made which does not smoke.
2.—The combustion is perfect, hence there is no accumulation of soot in the flue.
3.—THE ONLY BURNISHER IN THE WORLD WHICH HAS A THERMOMETER ATTACHED.
4.—It is impossible to blister prints where an Acme Thermometer is used.
5.—The Acme Thermometer enables you to secure uniform results.
6.—There is absolutely no moisture on Feed Roll or Polishing Tool
7.—The Feed Roll is milled or engraved, and prints cannot stop on hot flue while being burnished.
8.—The Acmes are full nickeled and the most beautiful Burnishers ever made.
9.—This Burnisher is the simplest of all.
10.—Heats in five minutes.
11.—Guaranteed in every particular.

PRICES.

11-inch—Oil, Gas, or Alcohol,								**$25.00**
15	"	"	"	"				**35.00**
21	"	"	"	"				**55.00**
26	"	"	"	"				**65.00**

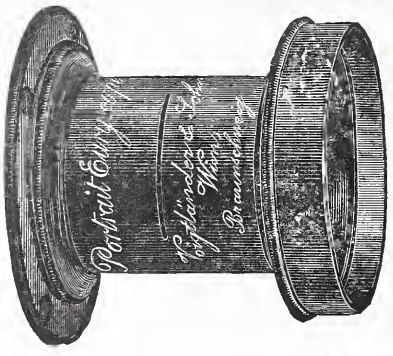
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ACME BURNISHER COMPANY,
FULTON, N. Y.

FOR SALE BY ALL DEALERS,
And THE SCOVILL & ADAMS CO., NEW YORK.

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AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtlander's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

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Revised price-List sent on application. Correspondence solicited.

CATALOGUE ON APPLICATION.

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MENTION PHOTO. TIMES.

HYATT'S

Patent Stamp Portrait Cameras.

Patented July 12th, 1887.



I am now prepared to furnish our ***Patent Stamp Photo. Apparatus,*** manufactured under the KUHN Patent, issued July 12th, 1887, with the right for using same, at the following low prices, and would respectfully caution the trade against purchasing or using any infringing apparatus.

Stamp size, with 25 lenses for making 25 on 5x7 plate....$50 00
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Perforators for perforating same, under our *Stamp Patent* (also issued July 12th, 1887)..... 35 00

H. A. HYATT, N. E. Cor. 8th and Locust Sts., ST. LOUIS, MO.
For Sale by all Dealers.

HORGAN, ROBEY & CO.,

Photographic Stockdealers,

SOLE AGENTS FOR THE

NEW ORTHO-PANACTINIC LENS, C. H. C. & CO. S ALBUMEN PAPER, THE SEMI-CENTENNIAL CAMERA STAND, THE ODIN FRITZ RE-TOUCHING MEDIUM.

New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List.

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Photographic Supplies of all Kinds

For Professionals and Amateurs.

FULL LINES OF LEADING MAKES OF

Cameras, Amateur Outfits, Dry-Plates, Card Stock and Chemicals

Orders promptly attended to and Quotations given.

☞ Dark-room for use of customers.

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Opposite Delavan House, 582 Broadway, ALBANY, N. Y.



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Having purchased *The Photo-American Review*, our magazine will be known hereafter as *The Photographic Herald and Photo-American Review*.

It will be published monthly at $1 per year, and edited by Mr. Laury MacHenry.

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HAVE YOU SEEN THE FERRET?

It is a Detective Camera, and one of the best. Plain, simple, substantial and good. Leather covered, two finders, good lens, and a tiptop shutter for either time or instantaneous work. There is nothing fancy about it, hence the price is only $15, complete with one holder. It takes pictures 4 x 5. Come and see it, or send 10 cents for circular and sample picture.

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THE AIR BRUSH



Applies any dilute liquid pigment by a jet of air. Work is far more rapid than crayon and is equally artistic. Adopted by hundreds of the best crayon and water-color portrait artists in the United States.

Gold Medal Franklin Institute.
Special Medal American Institute.

Send for descriptive pamphlet. Address

AIR BRUSH MFG. CO.,
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CHAS. COOPER & CO.,

194 WORTH STREET,
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MANUFACTURING

CHEMISTS

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OF

PHOTO WASTE,

WORKS AT

NEWARK, N. J.

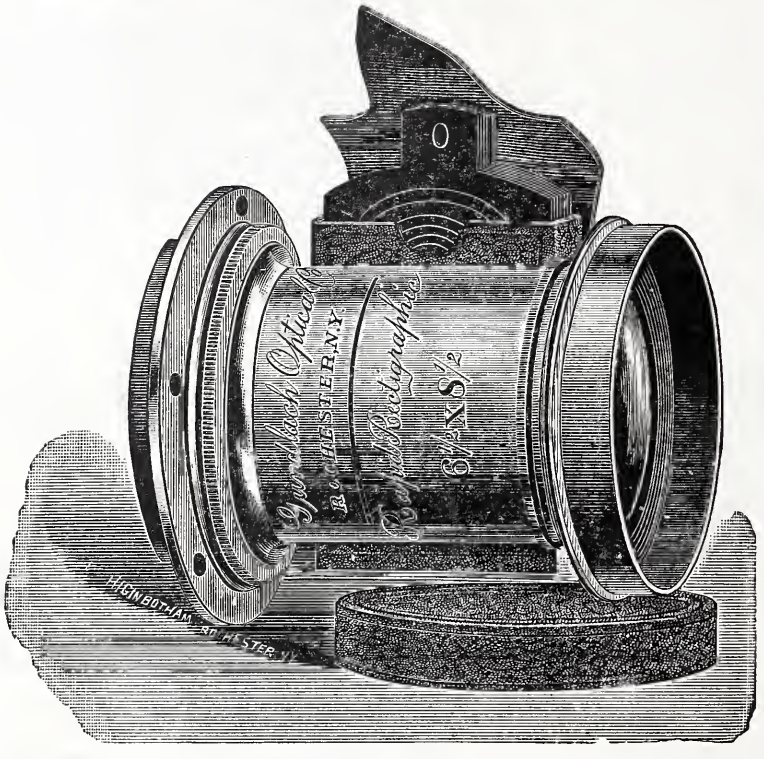
The A. M. COLLINS
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would call attention of Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

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The *RECTIGRAPHIC* and the *PERIGRAPHIC* are now composed of

TWO APLANATIC TRIPLETS

of a novel form, producing a degree of *Optical Superiority* and *Flatness of Field* which has not been attained heretofore in Photographic Lenses.

The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

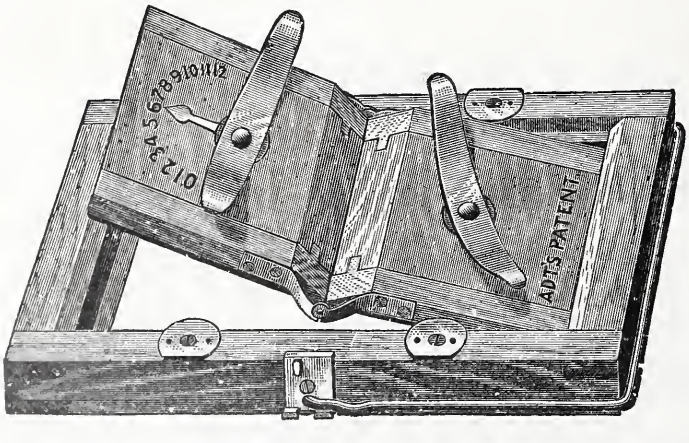
Send for descriptive catalogue to the

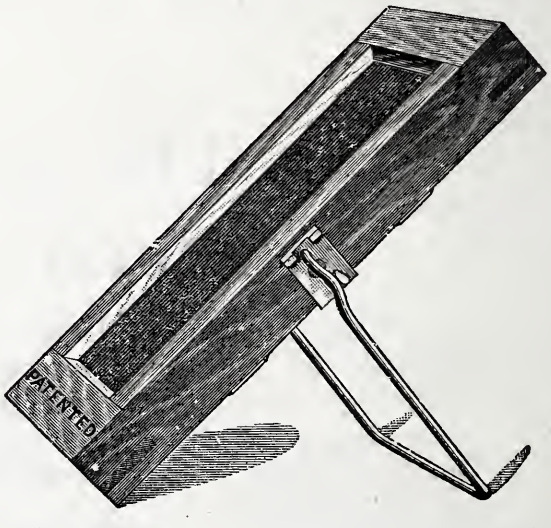
GUNDLACH OPTICAL CO.,
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ADT'S PATENT PRINTING FRAME.

THE MOST PRACTICALLY CONSTRUCTED FRAME IN THE MARKET.





As will be seen by a glance at the cut, the adjacent edges of the parts of the back-board are beveled outward, and the hinges placed on the sides with their axes on a line with the surface. This permits the attachment to the face of the back-board of a **Heavy, Continuous Elastic Felt Pad.** This obviates the necessity of using a separate pad, which is so easily misplaced and lost.

These Frames are now supplied (without extra charge) with Adt's Patent Support with which the frame can be stood on either end, and at four different angles, for exposure while printing. It is out of the way of the printer when introducing the paper, or examining the print, for when the frame lies or is held with back up, the support instantly drops upon its stops for rest, and is entirely out of the way of the hand of the printer, so that he may remove or open theb ack-board, or replace it, as if there were no support present. Being arranged close around the sides and ends of the frame, it occupies so little space as not to interfere with the packing or storage of the frames. and when the printer places his frame for exposure the support readily finds its position for supporting the frame without any special manipulation.

PRICES.

3¼x4¼,	$0 50	4¼x6½,	$0 60	6½x8½,	$0 75	11x14,	$2 15
4x5,	50	5x7,	65	8x10,	85	13x16,	2 40
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When made with backs to open lengthways, an additional charge of ten per cent. will be added to the above prices.

THE SCOVILL & ADAMS COMPANY, Agents.

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ESTABLISHED 1865.

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WILSON-HOOD-CHEYNEY COMP'Y,

(LIMITED.)

Photographic Supplies,

AND THE

ROSS LENS.

Full Assortment of White's Posing and Lighting Specialties.

∴ No. 910 Arch Street, ∴

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MUNN & CO.
SCIENTIFIC AMERICAN AGENCY for
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RAPID, CLEAN, CLEAR, BRILLIANT.

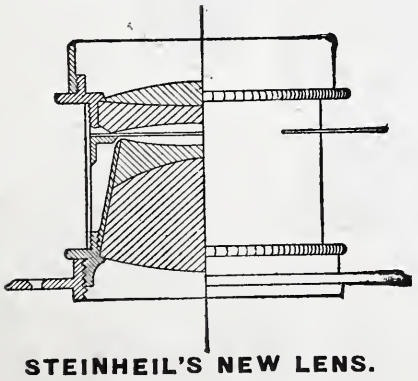
EASY MANIPULATION, FREEDOM FROM FRILLING, STRUCTURELESS FILM.

HARVARD DRY PLATE CO. MAIN 25 STREET, CAMBRIDGE, MASS.

A full supply kept in stock by

THE SCOVILL & ADAMS COMPANY.

THE UNRIVALED STEINHEIL LENSES.



STEINHEIL'S NEW LENS.

These Lenses not only maintain their old-established reputation, but continue to lead in the field of progress. Made in six different series for every description of work. Special attention is called to

Series No. II, Patent Antiplanatic, the newest conception in rapid lenses. For Instantaneous Portraits, Large Heads, Full Figure Groups, Architecture, and Landscape. A marvel of illumination, depth and rapidity. No Photographer or Amateur should purchase a lens before testing a Steinheil, Series No. II. See accompanying cut.

Series No. III, the famous Aplanatic tube, the illumination of which has been increased, and which is recommended for large Portraits, full-size Figures, Groups, Architecture, and Landscape.

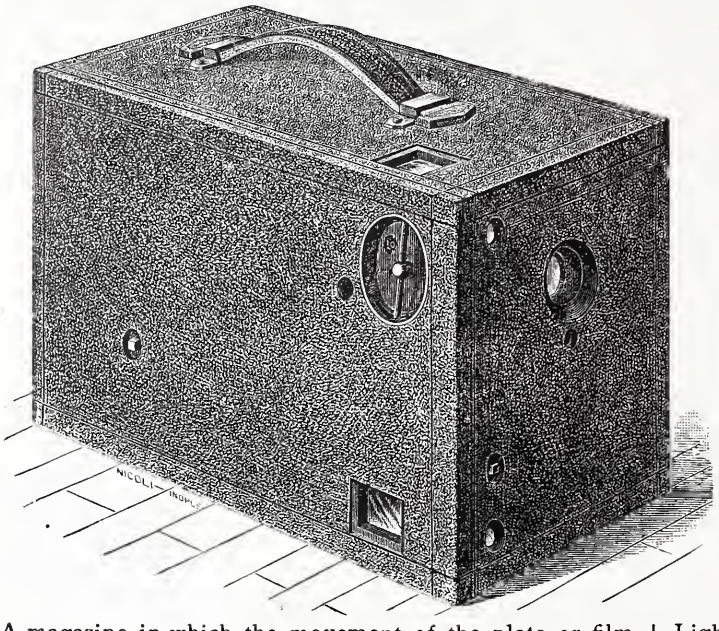
Series No. VI, Wide Angle Aplanat, which has no rival for copying Maps Charts, Paintings and Engravings. It is the Photo-lithographer's favorite.

Send for Illustrated Catalogue and Price-List to your dealer, or

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THE HETHERINGTON MAGAZINE CAMERA.



THERE IS NO
Shutter to set,
Slide to draw,
No door to be opened.

THERE ARE NO
Hinges,
Springs, or
Obtrusive fixtures.

THERE IS NOTHING
Guessed at,
Left to chance, or
Complicated.

THE ACTION IS
Directly mechanical,
Under positive control,
Absolutely EXACT.

Twelve consecutive exposures upon plates or films with but two movements.

TURN DOWN THE PLATE.
RELEASE THE SHUTTER.

A magazine in which the movement of the plate or film is directly and mechanically controlled at all times.
A locked box that is opened without a key.

A lens that is guaranteed.
A focusing device that can be *seen*, *felt* and *heard*.
A shutter that is ever set.
Diaphragms that are operated from without.
Light, small, simple and complete.
Plates can be changed in complete darkness, no especial light necessary.

NO WORKING PART EXTENDING BEYOND THE SURFACE OF THE BOX.

Size, 4 x 5.....Price, $45.00.

Also can be especially constructed to carry any number of additional plates up to 36.

FOR SALE BY ALL DEALERS.

HETHERINGTON & HIBBEN, 17 to 27 West South St., Indianapolis, Ind.

ALFRED L. SIMPSON, Trade Agent, 66 Broadway, NEW YORK.

HALF-TONE ZINC ETCHING.

I am selling printed half-tints, sizes 24 x 24 inches, and 9 x 11 inches, especially constructed for all the Half-Tone Photo-Engraving and Zinc-Etching Processes.

I also give instruction by Letter and Practical.

1. For preparing the necessary Negatives for the Half-Tone Processes.

2. In my excellent process of Copying directly on Zinc Plates.

3. In my Peculiar process of Zinc-Etching in Line and Half-Tone.

Detailed prospectus and samples on application by

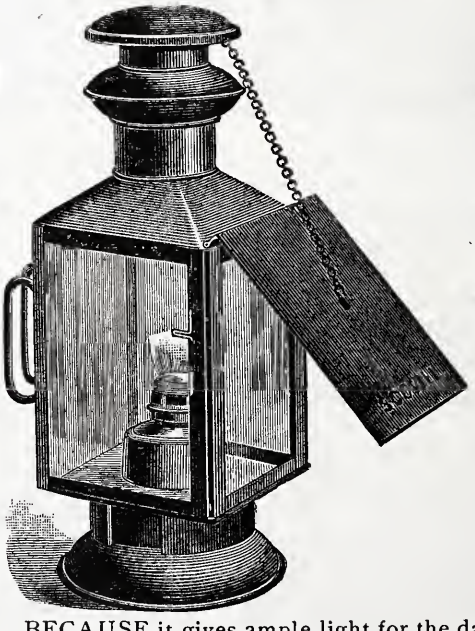
A. D. TUERCKE,

Occam Str. 20, Schwabing, Munich,

GERMANY.

THE SCOVILL
PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and danger of overheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

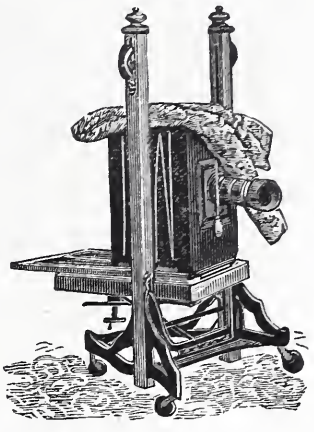
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THE SEMI-CENTENNIAL CAMERA STAND



LEADS ALL OTHERS.

At the late Convention held at Washington, the Award for the most Improved Mechanical Appliance in Photography was given it.



NO STAND

can compare with this for its ease in working, its durability and elegant appearance.

SEE ONE AND BE CONVINCED.

E. C. FISHER, Inventor and Manufacturer.

Sold by all Dealers. Price, boxed $25.00.

HORGAN, ROBEY & CO., Sole Agents for U.S., Boston, Mass.

Weight of Stand, packed ready for shipment, 95 pounds.

Eastman's Transparent Films,

FOR ROLL HOLDERS.
NO STRIPPING REQUIRED.

Eastman's Model of 1889 Roll Holders,

WITH LATEST IMPROVEMENTS.

Eastman's Interchangeable View Cameras.

LIGHT, STRONG, HANDSOME.

Eastman's Permanent Bromide Paper.

IN HALF TONE, Unequalled.
IN COATING, Absolutely Perfect.
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Eastman's Transferotype Paper.

A Bromide of Silver emulsion, coated upon paper from which, after Development, it may be stripped and transferred to other surfaces. Invaluable for Transparencies, Opals, Placques, Tiles, etc.

New Kodak Cameras.

"You press the button, we do the rest."

(OR YOU CAN DO IT YOURSELF.)

Seven New Styles and Sizes

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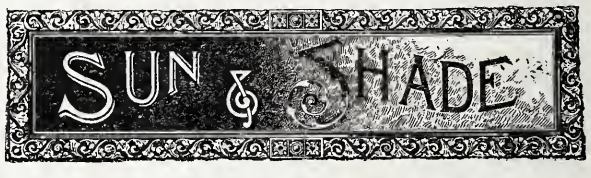
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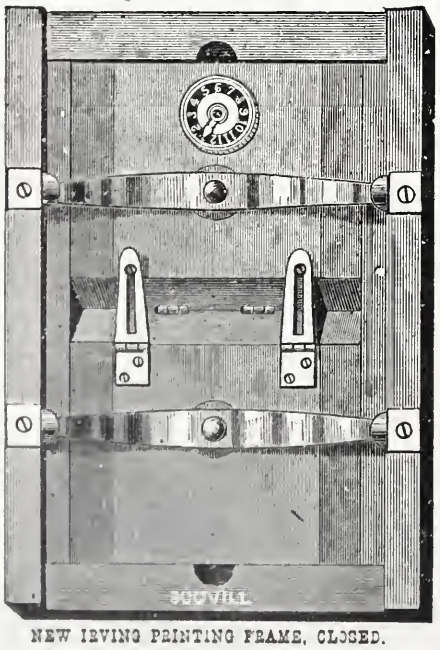
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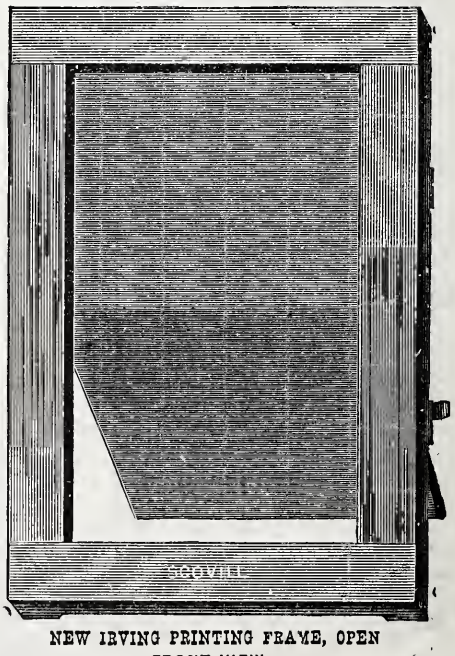
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THOMAS A. EDISON

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, OCTOBER 9, 1891. No. 525.

THOMAS A. EDISON.

OUR readers will all be glad to have the excellent portrait of Thomas A. Edison, which we present to them with this issue of THE PHOTOGRAPHIC TIMES. Perhaps no man of science ever lived who was so universally admired and respected as is Thomas A. Edison. And few if any have lived to see the results of their inventive genius crowned with such conspicuous success. Edison will be a name remembered not only for its connection with the phonograph, the telephone, and innumerable applications of electricity; but will also be associated with those who have made the camera the power which it is in our time, and the much greater power which it is destined to be in the future.

Mr. Edison has always been interested in photography, but of late this interest has grown, with the result of his applying his surpassing inventive genius to it, and the kineograph, which has been widely described in the public press, was invented. Undoubtedly we have much more to expect from the "Wizard of Menlo Park"; how much, it is impossible to say; but almost anything may be hoped for from one who has made so many inventions, any one of which might justly make this century momentous. The excellent reproduction was made by Bartholomew & Peckham, New York City, direct from Mr. Falk's negative, being etched on copper by their new method of making half-tone plates.

OBITUARY.

WALTER CRANE NORTH,

Another well-known photographer, has passed away. Walter C. North died at Kinston, Sunday night, September 6th, and the funeral occurred at the same place the following Tuesday afternoon.

Walter C. North was born in Rondout, Ulster County, October 31, 1831. He was educated there until he was fifteen years old. Then he worked in a general store for two years, when, in 1848, he went to Brooklyn, where for two years he was clerk in a book-store. During this time he sang in the choir of Henry Ward Beecher's Church, and he was about the only member of that choir left. Next he returned to Rondout, where he worked for William C. North in his Daguerrean gallery. The proprietor went to Cleveland, O., and young North followed in a year, and remained in his employ two years' longer. In 1853 Mr. North went to Mansfield, O., and there opened his first gallery. He remained in Mansfield three years. Then he returned to Cleveland and bought out his uncle, William C. North.

A year later he sold the business back to him again, and the sewing machine having been introduced about this time, Mr. North began selling the Quaker City sewing machine. After several years spent in this business, he returned to Rondout in 1860 and re-opened a photographic gallery. The day before Christmas, 1861, he went to Utica and formed a partnership with Mr. Raymond. After a time he bought out Mr. Raymond. From 1874 to 1878 Mr. North travelled; in 1878 he returned to Utica and bought out J. B. Smith's gallery at 56 Genesee Street, where he since conducted a photographic gallery, occupying two floors.

Mr. North was one of the most talented and skillful of artists, and made more than a local and State reputation. In 1867 he went to Europe and attended the Paris Exposition. Here he found fine photographs made from negatives which had been retouched. This was a process then unknown in America. Mr. North learned the art of retouching and brought specimens back to this country. He was largely instrumental in introducing the art of retouching into this country. In 1868 Mr. North became a member of the National Photographer' Association of America, serving on its Executive Committee one year. Mr. North

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made the finest and most exquisitely delicate transparencies and pictures on porcelain, ground glass, etc. His speciality was fine work, and from 1874 to 1878 he traveled in Ohio and other Western States, giving instructions in these specialities to photographers. He sent many specimens of his work to the annual exhibition of the National Photographer's Association. He experimented a great deal and made a study of photography.

Mr. North was an artist in every sense of the term. He read a choice class of literature. He loved music, was a fine bass singer, and a good organist. He was one of those who, in 1865, organized the Utica Mendelssohn Club. He remained in this society until he left town in 1874. He was in Dr. Sieboth's choir in Trinity Church for two or three years. He was one of the charter members of Faxton Lodge, F. & A. M.; of Oneida Chapter, R. A. M.; Utica Commandery, No. 3, K. T., and of Ziyara Temple, Nobles of the Mystic Shrine. For many years he played the organ in Masonic Hall for all the Masonic bodies which met there, and for nine years previous to 1873 he had charge of the music in Westminster Church, which church he always attended.

In 1853 Mr. North married Harriet C. English, of Cuyahoga Falls, Ohio, who is living. He has one son, Frank W. North, and two brothers, David and Crawford, of Brooklyn, the former chief engineer of Elbridge T. Gerry's yacht, the Electra; and one sister, Mrs Dr. Vary, of Kingston, N. Y.

COPYING WHITE AND BLACK SUBJECTS.

IN his communication to THE PHOTOGRAPHIC TIMES, published in the Sept. 25th issue of this magazine, page 477, Professor Karl Klauser cites Mr. Carbutt, Dr. Ehrmann, and myself, asking what are our views on the various processes—specially the gelatino-silver-bromide—employed for photographing white and black, that is, line-drawings and engravings to be reproduced by the photo-mechanical processes, and what are the results of our experiments in this special branch of photography copying designs in lines and dots.

Professor Klauser is a photographer of great ability and of not a very common artistic taste. What others can do, he does it. I have nothing to teach him either at a theoretical or practical point of view. However, since I was asked to say what I know, I shall do it for the benefit of the beginners who may have to copy the subjects in question for the purpose above specified.

As rightly said by Professor Klauser, clichés of line-subjects should be of a great opacity in the whites and of a perfect clearness (bare glass) in the minutest lines and dots. And this is not as easily done as it seems; it requires a certain practice.

The first difficulty is the exposure-time. When photographing half-tone subjects—portraits, landscapes, etc.—from nature, we should lengthen the period of exposure according to the lighting of the subject, in order—if the contrasts are photographically great, as it is generally the case—to have the benefit of the reversal, or, in other words, to equalize, as far as it is possible, the action of weak and strong lights, and thus to avoid harshness or loss of details in the shadows, one entirely depending on the manner of conducting the development, to obtain vigor and brilliancy after the delicate details are out and well defined.

On the contrary, to obtain the greatest opacity in the whites, which is a *sine qua non* when photographing white and black, instead of lengthening the exposure time, we must expose as shortly as possible, to prevent *solarization* (*i. e.*, the primary action of the reversal) and keep the blacks quite clear by not having been impressed, I will not say by the light reflected from the lines or dots, which, if the ink is lusterless and opaque-black, is impossible, but by the diffused light entering into the lens, it being sometimes reflected by extraneous objects.

Hence the lens should be provided with a top shade, or, better, with a cone lined with black velvet.

It is useless, is it not? to say that the lens should be placed outside of the field of the angle of incidence formed by the light falling on the model; that the latter should be exactly parallel to the lens; that it should be pinned on the bottom of a box having the form of a cone and lined with white cardboard, in order that the light being upon it reflected from every side, the grain of the paper be not reproduced?

Now, as to the process: It is evident that for half-tone subjects none excels the gelatino-silver-bromide. But this is not in question. For white and black, I think with most of the photo-engravers—and they are great authorities in this matter—that the wet collodion process gives the best results, and this with the least trouble and most certainty, provided the chemical preparations be appropriate to the process.

To compound the collodion the best haloid salts are those of zinc; they form the most sensitive photo-film and yield the greatest intensity. The drawback is that the collodion thickens somewhat and does not keep. To turn the difficulty I keep separately the plain collodion and the iodizing

solution, mixing them in certain quantities for a few days' use, thus:

A. Ether, 0.725.....240 fluid parts
Alcohol, Atwood's patent.....120 fluid parts
Pyroxiline.....6 to 7 parts

B.—Alcohol, as above.....120 fluid parts
Sodium iodide ..... 3 parts
Zinc iodide ..... 2 parts
Zinc bromide..... 1 part

Mix by equal volumes; filter through cotton.

Silver bath 10 : 100, acidified by nitric acid.

The developer should be acidified by tartaric acid.

Water.....480 parts
Ferrous sulphate..... 25 parts
Glucose, liquid..... 15 parts
Tartaric acid..... 3 parts
Acetic acid, No. 8..... 15 parts
Alcohol, ordinary.....*quant. suff.*

This bath keeps well in the light, acts slowly and regularly, and the image assumes much intensity. However, it seldom happens that the opacity is sufficient, specially for the want of the photo-typo-engraver. The cliché should be intensified. For that purpose we prefer—and this generally suffices—to convert the silver forming the image into sulphide by flowing it, when fixed and well washed, of course, with a diluted solution of ammonium-sulph-hydrate.

Other processes are employed: The old mercuric chloride and ammonia process of Scott Archer, the lead process of Dr. Eder, that of Wm. Campbell with cupric bromide and silver nitrate, etc., etc.; they are described in the Annuals The only care to be taken is to commence with clear lines. Should there be any deposit of metallic silver, it ought to be dissolved by lengthed immersions into the fixing bath ; a solution of potassium cyanide.

It is not very likely that the amateur photographer will ever attempt to work the collodion process. It requires a great practice to keep the silver bath in good working order, to avoid pinholes, surface making, etc., to trace the failures to the real cause, etc. And the gelatine process is so simple ; you buy the plates already prepared, you expose and develop. Yes, you expose and develop, and there again lies the difficulty. No doubt it can be done to perfection; Professor Klauser does it; others, amongst which the writer of this paper, have done it * * * but often the lines are not exactly clear, and, besides, the intensification is liable to spoil the cliché for the purpose in question.

We have used Carbutt's process plates, and sometimes, those for transparencies ; they are good and commendable. I think that Mr. Carbutt can still improve them. He has only to will it. There is no necessity—on the contrary—that they possess a great sensitiveness—if they are as sensitive as wet collodion plates that suffices—a little more iodide, less or more cooking * * *

To develop, I use pyrogallol; it is my favorite reagent and do not use any other one. I proceed thus : I immerse the plate in a sufficient quantity of

Water.....480 parts
Sodium sulphite ..... 25 parts
Pyrogallol ..... 3 parts
Potassium bromide.....0.5 parts

In this I let the film soak for a minute, then I add about 1 per cent. of a saturated solution of sodium carbonate C. P. (not the commercial article sold under the name of *washing soda*, which is quite impure and liable to produce yellow fog), and wait to see the result : If the exposure-time has not been too lengthened the image will not commence to appear in a minute; we add, consequently, more—not much—of the carbonate solution, and then another dose if the image still refuses to make its appearance, taking care not to add an excess of alkali in order to prevent the secondary action of the same—we suppose that the reader knows the theory of the development.

Should the image appear rapidly one restrains the action by adding a few drops of a potassium bromide solution, 1 in 10, to keep the blacks clear, a *sine qua non*, as said before.

As soon as the image appears and develops regularly, the action should be allowed to proceed until the reduction reaches the back of the film, when all the impressed silver bromide being reduced it is useless, nay, prejudiciable to leave the film any longer in contact with the developer ; long development produces a chemical veil as well as a physical yellow fog (dyeing).

After development the plate is rinsed, immersed, for say two minutes, in a solution of tartaric acid, to avoid the yellow and sometimes green fog arising in the fixing bath, then washed, fixed, etc.

Now as to the intensification. If the image bleached with mercuric chloride, then treated, after a prolonged washing by aqueous ammonia, or, better, by silver sodium thiosulphate—a solution of sodium thiosulphate (hyposulphite) *nearly saturated* with silver carbonate or chloride—does not acquire the necessary intensity from the silver reduction forming the image not being sufficiently dense, there is five changes to one that, by re-intensifying, the cliché will be unfit for photo-engraving purposes * * *

In concluding, I must say that whatever be the process employed halation is a common defect. Not that the halo acquires much extent, but sufficiently, however, to somewhat widen the lens. Backing with an opaque material is the well-known remedy.

P. C. Duchochois.

ANOTHER REPLY TO PROF. KLAUSER.

In the issue of September 25th, my old friend Klauser calls, among others, also upon me to express an opinion relative to the reproducing of black and white work upon gelatine emulsion plates, I gladly respond: It seems that my lengthly controversey with J. F. Coonley, of many years ago, and published in Volume XIII. of the Photographic Times. has been revived, and, although I have ever since been an enthusiastic devotee to gelatine processes, in the present case certain concessions are due to the collodion wet-plate. One of its honors is that it has held the fort to the present time valiantly as the best medium for the making of photo-mechanical reproduction.

Professor Klauser does not state distinctly what kind of work he expects to do with gelatine plates, but I infer from the last passages of his article he is quite content to print from his reproduction plates upon albumen paper. For that class of work a gelatine plate will do just as well as any other, as absolute transparency of non-exposed portions of the negative is not a necessity. A tolerably thick vail over the transparent portions will by long exposure print upon albumen paper, or any other kind of photographic paper, just as well as if absolute transparency were one of the properties of the negative, provided it be developed with requisite intensity. But this vail, which of more or less thickness exists almost invariably upon most gelatine emulsion plate, is just exactly what makes them detrimental to and unfit for photo-mechanical work. Printing from a vailed negative upon an asphaltum or bichromatized zinc plate and etching it afterwards will never in the world produce sharpness of line and general crispness wanted, and which is accomplished to perfection with a good and sound wet collodion plate.

It is true improvements have been constantly made on gelatine emulsion plates—they have often successfully been employed for photo-mechanical work, and there are thousands of instances of having stood well for first-class etching; the process can, however, by no means be worked with the same certainty as the wet collodion process. To approach with gelatine to anything like success a slow plate must be used, and the emulsion be absolutely free from fog. With a cold emulsion containing a trifle of chloride of copper, I have obtained intensity quite equal to that of a collodion negative intensified with nitrate of lead and red prussiate, provided the exposure was correct, and, when coated upon a bichromate substratum, absolute transparency was obtained. But the emulsion is not alone the factor to attain to success. Proper time of exposure and developing are of equal importance.

There are now several brands of gelatine plates on the market eminently well adapted for black and white work, none of them better than the Carbutt so-called process plate, in sensitiveness between his A and B.

With gelatine plates the time of exposure is more important than with collodion. Collodion requires under-exposure because of the subsequent intensification; with gelatine plates it must be just so; and that is exactly the difficulty of the method. Expose for the whites; the blacks and the light reflected from the blacks should not cause the slightest impression.

Of developers for black and white negatives I have found old hydrochinon solution to be about as good as any other on account of the good intensity attainable. Eikonogen has not given me as good results as pyro, and that is most successfully used in freshly-prepared solution, but with either of them we encounter the main difficulty occurring with all the usual organic agents, yellowing of the film, caused by the oxidation products of the developer. For that reason many operatives prefer to develope with ferrous oxalate. Wilde, of Görlitz, adds iodine dissolved in alcohol to the ferrous oxalate and reports very satisfactory results. Seed uses iodine and bromide of potassium with pyro-soda, and the negatives thuswise developed were very encouraging.

Were I better acquainted with the new developing agent para-amidophenol I might take occasion to break a lance for it here. Any way can I say the experiments made with it are very promising for black and white work. If intensity is to be attained by long continued development, no better substance than it can be possibly found. Tinging the plate yellow is entirely abolished with para-amidophenol.

To make black and white negatives on gelatine plates for the autotype process is, on account of comparatively lower intensity, perhaps not quite as difficult as for line-work photo-engraving. In consequence of developing not being extended

quite as far, the plate is less liable to fog. With para-amido-phenol we can develop as slowly as one may please without injuring transparency to the slightest degree.

Gelatine plates for process work should be intense enough, in the first instance, without being compelled to resort to after-intensification, but, if it must be done, do it with cyanide of mercury and silver—it keeps transparency better than others.

The constant improvements going on induce one to believe the time is not very far distant when the last stronghold of collodion, the process plate, will surrender to its ever successful competitor gelatine, but at the present time collodion still reigns in that province.

Charles Ehrmann.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 490.)

CHAPTER V.

REDUCING AGENTS—(*Continued.*)

"*Ozone Bleach*" *and other Hypochlorites as Reducers*—The substance known as "Holmes' Ozone Bleach" was at one time much used (its price was only eight-pence per quart bottle) for laundry work and as a disinfectant. Chemically it is sodium hypochlorite. It was recommended by Mr. W. E. Debenham as a reducer in 1881; and he gave the following formula in 1882:

Ozone bleach	½ ounce
Chrome alum	10 grains
Water	5 ounces

The negative to be reduced is soaked in the above solution for a few minutes, during which time part of the image is converted into silver chloride according to the following equation:

$$Ag_2 + 2NaOCl + H_2O = 2AgCl + 2NaHO + O$$

Silver *and* Sodium Hypochlorite *and* Water *produce* Silver Chloride *and* Sodium Hydrate *and* Oxygen.

The negative is then dipped into hypo, which removes the silver chloride, and the image is thus "reduced."

The object of the chrome alum is to harden the gelatine. If it is dispensed with, the hypochlorite attacks both the gelatine and the silver, and the surface of the film is converted into a slimy layer which should be rubbed off with a pad of cotton-wool. Some have preferred to use this reducer in this fashion; but the addition of the chrome alum brings the reduction more under control.

Other Hypochlorites act in a like manner to "ozone bleach"; and since the latter appears to be not now readily obtainable, they may be used instead of it with identical results. Thus we have Robinson's method* of mixing hypochlorite of sodium (two parts of the commercial solution) with one part of a saturated solution of alum. Filter; and then bottle for use. Robinson gives the following equation:

$$Al_2K_2(SO_4)_4 + 6NaClO + 6H_2O = Al_2HO_6 + 3NA_2SO_4 + K_2SO_4 + 6HClO$$

Alum *and* Sodium Hyposulphite *and* Water *produce* Aluminium Hydrate *and* Sodium Sulphate *and* Potassium Sulphate *and* Hypochlorous Acid.

When the solution is poured upon a negative, the hypochlorous acid combines with the silver of the image to form silver chloride, which can afterwards be removed by a bath of ordinary hypo.

$$Ag_2 + 2HClO = 2AgCl + H_2O + O$$

Silver *and* Hypochlorous Acid *produce* Silver Chloride *and* Water *and* Oxygen.

Of the bottled solutioh as described, one part should be mixed with three parts of water for use.

The negative should be removed from the reducing solution a little *before* the solution required has been obtained; since the action will continue for some time while the reducer is in course of being washed out, and also because the removal of the silver chloride by the hypo causes a slight further loss of density.

Reduction with "Bleaching Powder."—Ordinary bleaching powder is calcium hypochlorite. It may be dissolved in water in the proportion of 20 grains to the ounce, and filtered; and will then reduce any negative which may be soaked in it.

The action is as follows:

$$CaCl_2O_2 + Ag_2 = 2AgCl + CaO + O$$

Calcium Hypochlorite *and* Silver *produce* Silver Chloride *and* Calcium Oxide *and* Oxygen.

The negative must then be *well rinsed*, soaked in a bath of hypo (to remove the silver chloride), washed, and dried.

Great care must be taken in using this method, or the gelatine will be so softened that the film will come away.

This reducer was described in the "Photo News Year-Book" for 1886, p. 37, by Mr. R. W. Robinson. He points out that the negative must be previously thoroughly *dried*, and that the reduction must be stopped as soon as the film begins to feel

*Photographic News, 1887, p. 499.

slimy. Local reduction can be effected by gentle rubbing with the finger on the part desired.

Eau de Javelle as a Reducer.—The liquid known as "eau-de-javelle" is sold commercially, and a good reducer may thus be made.

Eau de javelle.....	.... 1 ounce
Chrome alum.....	.....25 grains
Water.....	.....10 ounces

Dissolve the alum in the water, and then add the eau-de-javelle. The mixture is at first green and turbid, but becomes a clear yellow in a few minutes.

The negative must be soaked, first in water, and then in the above solution till reduced. Finally, wash well, fix in ordinary hypo, wash again, and dry.

Where eau-de-javelle cannot be purchased, a reducing solution containing it can be made up as follows:

Dry chloride of lime.....	2 ounces
Carbonate of potash	4 ounces
Water	....30 ounces

Dissolve the lime in 20 ounces of the water, and the potash in the remaining 10 ounces. Mix, boil, and filter. This is the reducing solution in which the negative is to be immersed. The subsequent operations are the same as those described above.

Reducing with Condy's Fluid.—Mr. W. C. Williams gave the following method in 1881 : *

Condy's fluid.....	½ dram
Saturated solution of alum.....4	ounces

Condy's fluid is a solution of permanganate of potash ; and instead of buying the bottled "fluid," the solid permanganate may be dissolved in water in the proportion of 2 grains per ounce.

The negative is to be soaked in the mixture for ten or fifteen minutes, then washed, soaked in ordinary hypo solution, well washed, and finally dried. We find that this method stains the negative yellow or red, and we do not recommend it, although it certainly reduces the image effectually enough.

Reducing with Bichromate of Potash.—Make up the following solution :

Bichromate of potash	2 parts
Sulphuric acid.....	4 parts
Water.....	.....100 parts

Soak the dried negative in the water for an hour, and then immerse in the above solution. Watch its action carefully, as it reduces quickly. This method was recommended by Mr. W. Hanson in the *British Journal of Photography* for February 23, 1872.

W. Jerome Harrison.

(*To be continued.*)

† Abney's "Instruction in Photography."

* *British Journal of Photography*, Vol. XXVIII, p. 29.

FOR THE DARK-ROOM.

THE following are a few of the articles that I find very handy and useful in or near my dark-room, and this article was suggested by my visiting a brother photographer's room, and finding but very little provision made to do work as it should be done. There was not only a meager supply of trays and other necessary apparatus, but also a carelessness and untidiness was manifested in the vessels used.

I use two camel's-hair dusting-brushes, one of these is dept dry and clean, and is used for dusting the sensitive side of the plates before placing them in the holders ; the other is used for brushing the plates after taking them out of the water to put them into the drying-rack. Each of these are hung up in a convenient place, and are always ready for use.

A short-handled kalsomining-brush about 4 inches wide makes a good duster for shelves, tables, etc. A package of soapine, or pearline, and two bristle brushes, one a good-sized sash-tool, the other a marking-brush, these are what I call my scrub-brushes, a little soapine and water and a liberal use of one of the brushes will thoroughly clean trays, wash-boxes, filters, funnels, graduates, etc., and if this is done immediately after using, they will always be ready for use when needed by simply rinsing with clean water.

An apron and a clean towel are very necessary articles, some sharp, stout pins for sticking paper or films to dry, a few sheets of opaque paper for masks or cut-outs, a bottle of mucilage with sponge top and cap, for sticking masks on glass, labels on bottles, etc., are also necessary articles.

It will be conveniet to have a few bottle corks, assorted sizes, on hand, and a package of absorbent cotton for swabs, filters, etc. A pen and ink, a blotter, pencil, and scrap-book, wherein is written or pasted formulas for baths and other useful information, blotting-paper folded so as to make two books about 10 x 12, one for damp prints, the other for silvered paper, and a cake of Gihous' opaque and brushes for stopping out pinholes and other defects in negatives will be handy and useful.

A pair of long-bladed scissors or paper-hangers' shears are a necessity, especially where films are

used ; a paper of tacks and a tack-hammer will sometimes be required; a piece of plate-glass about 10 x 12, for cutting masks, cut-outs, and for trimming prints on; a good sharp penknife, or a shoemakers'-knife are required; a bottle of parlor paste and a stiff bristle brush, a glass pattern for each size of prints required. These will do the work better, and the prints will be true and square; hence it will pay an amateur to have them in his outfit.

I have only given a few of the articles needed, and those that are not usually found in many amateurs' "kit of tools." To those who are not so provided I will say: Fit yourself up with all these necessary articles, and, when you have them, fix a place to keep them, and see that they are kept clean and ready for use at a moment's notice. Then pinholes, stained films, dirty negatives, and defects will be the exception and not the rule.

Thomas J. Bray.

CUPID'S CAMERA.

Before the camera she sat
  While I acquired the proper focus
To snare her fashionable hat
  With all its feathered hocus-pocus—
The girl for whom my heart would beat
  Irregularly and uncertain,
Who begged me with divine conceit
  To warn her ere I raised the curtain.

Thought I, when up this curtain goes,
  A silent listener compelling,
I'll tell her something which she knows
  Has been a long time in the telling;
And when the glass her face and all
  Its beauty has secured forever,
I'll let the lifted curtain fall,
  And get her answer, now or never.

And so I did. I put it back
  Amid a melody of laughter
And sentences which seemed to lack
  The happy answer I was after.
Dear girls!—as long as girls shall live,
  Be all the heavens bright above them!
But when I sought my negative,
  I found I had a couple of them!

—*Harper's Magazine.*

He Wasn't Good-Looking.—"It's so funny, Jane. Young Bellows has sent me his photograph with some excellent verse on the back of it."

"What of it?"

"Nothing, except that the poetry is so much prettier than the photograph!"

The Brute!—Margaret (leaning her head upon his shoulder): What are you thinking of, dearest?

John: Oh, I was just thinking what great fun it would be—for Tom—if he could spring his "Waterbury" upon us in this position!

Correspondence.

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I remembered one mistake in my hurriedly-written article on "Copying Line Engraving," which appeared in the October 2d issue of your magazine, after I sent off the proof to you. Under "clearing solution" iodine should be 10 grains, not ounces.

Very truly,

John Carbutt.

PHILADELPHIA, October 5, 1891.

THE PHOTO-CHRONOGRAPH.

WE were prevented at the time of our notice, says the *Optician*, owing to lack of space, from giving more than a few notes about the "Photo-chronograph," at the Georgetown College Observatory, in the United States. This ingenious discovery is worthy a more detailed account. The trouble heretofore in transit observation has been the "personal equation," or inaccuracy made by the eye or ear in translating the phenomenon of an object moving over the field of view in a telescope into a picture of the same which can be measured as a fixed object. A photographic plate reduces this inaccuracy to a minimum, and the first experiments to determine time by photographs of star-transits resulted in the discovery that the probable error of calculation could be reduced to 0.03. Other experiments, but not wholly successful, were made on the same idea in Washington; but further development devolved wholly upon the Georgetown College Observatory. One night Professor Biglow, to whom the idea is due, and Mr. Saegmuller, an instrument-maker of Washington, were sitting with the director of the observatory at the table in the library, and consulting as to the best way of putting the idea to a test. The long focus of the equatorial and the electrical connections for the time-signals and incandescent lamps came in very handy for the purpose. The first camera was soon constructed and screwed to the eye-piece of the telescope, and a few evenings later the star Alpha Aquilæ was made to trace its diurnal motion on a small plate not quite 2 inches square, while the sidereal clock made the whole camera move in a vertical direction once every second. Finally, the spider-lines of the micrometer were photographed on the same plate by means of an incandescent lamp held for a few minutes before the object-glass. The development of the first plate, in the dark-room of the cellar, was watched with great expectation, and, to the satisfaction of all the bystanders, brought forth two parallel trails, broken into dashes, each representing a second of time, and the whole reticule of the micrometer lines. The first apparatus was soon superseded by a second, and the second by a third, each being improved as the experiments suggested.

The apparatus now in use consists of a strong brass col-

lar fitting closely to the sliding tube, just behind the collimating-plate by means of a hinge and screw-bolt. To this collar is attached a U-shaped soft iron core, with a coil on one only of the arms, to diminish weight. The naked part of the core is bent back and up so as to act on the armature from behind. The end of the core is encircled with a thin ring of cord to dimish the force of the armature stroke. The usual adjusting and connecting screws are conveniently placed. A strip of steel about two millimetres in width and two-tenths of a millimetre in thickness, is soldered to the armature at right angles to its line of motion. This is passed through the apertures in the side of the focussing-tube, intended for direct wire illumination, and stretched across the recticle. The coil, armature and occulting bar and shutter are so fixed to the collar that, when at rest, the lower edge of the shutter (clamp east and transit pointed south) is parallel to, and a fraction of a millimeter above, the horizontal diameter of the reticle. This is the important part of the invention. Divested of further scientific details the device consists of a tiny camera fixed to the eye-piece of a transit instrument. In a plate-holder, an extra sensitive plate, 1½ x 2½ inches, capable of photographing a fourth magnitude star with an exposure of one-tenth of a second, is placed. Connection is then made with a sidereal clock relay. When a star begins its transit the current is turned on. The occulting car or shutter falls with the armature, cutting of the light of the star. At the break the shutter rises with the armature, uncovering the star for one-tenth of a second and dropping again as the current flows. Hence the negative shows a simple line of dots or the star-trail across the plate. This can then be permanently fixed on the plate and microscopically measured and examined. These micrometric examinations have been made of over 200 photographic transits without finding any perceptible trace of serious error. It is claimed that photo-chronography actually registers on the sensitive plate to within the 1-1000 part of a second, the time of the transit of a star.

The principal idea, of course, in photographing the transits of stars is to translate the phenomenon of an object moving over the field of view in a telescope—the instant at which it passes a thread being noted by eye or ear, or by the chronograph—into a picture of the same which can be measured leisurely as a fixed object. The error of personal equation depends ultimately upon the difference of time required by the eye to receive the impression of a bright object and to let the same go. Impression is more rapid than the letting go, and the relative times of retention vary with individuals, and with the variable physical condition of the individuals. As stars are momentarily occulted behind a thread in transit, this element of retention throws the apparent place of the star beyond the thread ; hence, eye and ear observations being taken at intervals from the thread, with the star in full vision, are more accurate, and evident positive correction usually to be reduced to transits by chronograph taken on the thread. A photographic plate reduces to a minimum this correction, both as to its amount and its variability ; and whatever other corrections may be introduced by the process, they are mechanical and can be obtained by the discussion of results. For the work of making a standard catalogue of bright stars for fundamental differential comparison, for longitudinal determinations, for latitude, and also for physical observations in laboratories, it seems very important to eliminate by some process the error of the personal equation, which s in fact, the greatest source of error in all such measures. There is no doubt that in a 6-inch transit instrument, stars can be taken to the fourth magnitude, and wherever the elimination of personal equation is of sufficient importance the utility of the method can hardly be doubted. It is believed, however, that the chief field of usefulness will be found in the physical laboratory, where any amount of artificial light can always be used, and the automatic record can be made to assume any degree of accuracy desired. It is known that many experiments in physics are afflicted with personal equation, and thus there is a hope of avoiding them by the introduction of this apparatus.

Notes and News.

G. Waldon Smith, Boston's enterprising photographer, has recently been very successful in large groups. He obtained the silver medal for this class of work at the New England Mechanics' Fair.

The California Camera Club projected over two hundred slides on the screen before a crowded audience in San Francisco, Friday evening, September 25th. It was the first pay exhibition of the camera club and was given in Metropolitan Hall. It was a magnificent success in every way.

Yellowstone National Park Views, projected in natural colors by sunlight, may be seen at Mr. F. E. Ives's private house, between one and three o'clock P.M., on almost any perfectly clear day, by special appointment with him in advance. Mr. Ives's business address is 911 Filbert Street, Philadelphia, Pa.

The Cramer Exhibition of photographs made on the various brands of the Cramer Plate, which was shown at the late Buffalo Convention of the P. A. of A. has been on exhibition at Detroit, and elsewhere, where the excellence of the work by McMichael, Rose, Jackson, Hemment and others called forth universal praise.

The Sixtieth Annual Fair of the American Institute was opened by General Stewart L. Woodford, Wednesday evening, Sept. 30th. About 6,000 people were present, and all seemed to consider the fair fully up to the average. There are not quite so many small exhibitors this year as heretofore, but there is a much larger proportion of big exhibitions. In all there are about four hundred booths. The fair will remain open until November 28th. We shall give an extended notice of the photographic section in a later issue.

A Set-Back.—I see that amateur photography has received a set-back in Poughkeepsie, where a beginner has been compelled to lay up for repairs from the treatment he received at the hands of a big brother whose sister the camera depicted as having four ears, one eye, and a nose divided into sections like a bamboo rod. The amateur was willing to apologize for the depravity of his camera, but hadn't time.—*Brooklyn Citizen.*

S. J. Dixon, the photographer who acquired so great notoriety from walking over the Whirlpool Rapids on a three-quarter inch wire, and other daring athletic feats, was drowned Saturday morning, October 3d, at Woodlake, Moskoga.

James W. Forbes, one of the oldest operators in this country died suddenly in the 51st year of his age. He had just recovered from a severe attack of malarial fever when he was stricken with the disease which caused his death. Mr. Forbes was an operator for Gurney & Brady in the first days of wet-plate photography. Latterly he had been demonstrator for the Eagle Dry-Plate. He had many friends both within and outside of the photographic fraternity, and was much esteemed by all for his genial qualities.

Our friend, S. W. Burnham, of the Lick Observatory, on Mount Hamilton, sends us a report of a double-star observation which he made, during 1890, with the 36-inch equatorial of the Lick Observatory. Besides photographing many new double stars, he observed that some which were supposed to be double stars were not so in reality. He also discovered some new nebulæ. Professor Burnham continues his photographic work in connection with the telescope.

Photographing the Larynx.—Dr. Muschold, of Berlin, has been making a new departure in the photography of the larynx. He has succeeded in devising a method of accurately focusing the image of the larynx on a ground-glass screen before exposing, which has not hitherto been done, the effect being that a good result was almost entirely a matter of chance. He, of course, employs flash-light, as his predecessors have done; but the back of the camera is made about treble the width of the plate to be exposed. To the plate is attached a rod, which projects at the side, and at the other end of it is the ground-glass screen. As soon as the image has been accurately focused on the screen, the projecting rod is shoved in, whereupon the two plates are moved along a groove, in which they slide, the sensitive plate taking up exactly the position previously occupied by the screen. At the same instant the magnesium powder is ignited, and the exposure made.—*British Journal of Photography.*

A Mammoth Camera.—Messrs. Buchanan, Bromley & Co., dealers in photographic goods, have just delivered to a local photographer what is doubtless one of the largest cameras ever made. It will take a plate 30 x 40 inches, while the largest plates now mentioned on the plate makers' lists are 20 x 24 inches, about one-third the size. The camera was made by the Scovill & Adams Company, of New York, of fine mahogany, the track on which the rear part slides being rosewood. When fully extended the camera is 66 inches long, and when closed is 16 inches thick. The two plate-holders have curious slides. The printing-frame accompanying the camera is correspondingly massive.

The use to which the apparatus is to be put is not revealed by the purchaser, beyond that it is to be employed in work for the National Government. A small lot of plates secured from a St. Louis maker, to fit the holders of this mammoth camera, cost the purchaser at the rate of $45 a dozen.—*Public Ledger, Philadelphia.*

Detected by the Camera.—Science is pressed into the detective service more and more. At one time it is chemical analysis, again it is the phonograph, and anon it is photography. A striking illustration of the latter application has occurred in Paris.

Two Parisian dressmakers on entering their rooms the other night found that their door had been broken open and that $2,000 in bank notes and a box containing $4,000 in notes and jewelry were missing. The arrest of the thieves—three men and two women—and the recovery of the greater part of the property appear to have been due to a "detective camera."

An amateur photographer lives opposite the dressmakers. He, looking out of his window one afternoon, observed two young women on the balcony over the way. With his camera he took an instantaneous photograph of the two strangers and closed the window. Some days later, on hearing of the robbery, he sent a print of his photograph to the police, who recognized the portrait as that of two women who frequently loitered in front of the Central Market. They were arrested, and gave the names of their accomplices. Whether the motive of the young man who took the photograph was one of curiosity or whether he had a suspicon that the young ladios were thieves is not stated, but in any case the result was one to be thankful for.—*Baltimore Sun.*

Improvements in the Soda Developer.—A number of experiments conducted by the editor of the *British Journal of Photography* show that the addition of chloride of ammonia to the ordinary carbonate of soda and pyro developer will prevent the yellow staining of the negative, in fact acts as a substitute for sodium sulphite. The strength of the carbonate of soda solution is 15 grains to each ounce of water (even 12 grains to the ounce will do), to which is added 4 grains of chloride of ammonia. In mixing the developer a few minims of this solution, say 20 minims to 2 ounces of a pyro or eikonogen solution, will be sufficient, or more may be added to hasten development if needed. In some cases it is advisable to add a half grain to the ounce of bromide of ammonium.

It is said to work well in connection with hydrochinon, but sulphite of soda should be present to prevent a slight yellow stain that is liable to occur.

Another modification is the use of caustic soda or potash.

The developer as applied to the plate is prepared as follows:

Pyro	6 grains
Sulphite of soda	20 grains
Caustic soda	6 grains
or	
Caustic potash	8 grains
Chloride of ammonia	8 grains
Water	2 ounces

To each ounce of solution 1 grain of bromide of ammonium should be added.

Actors Before the Camera.—Sarony was in a high photographic fever. The tassel on his little red fez bobbed wildly up and down, and he circulated around the group of players which he was taking in costume with electrical rapidity. The pictures were to be used for "window work," and the manager of the company wanted them to be particularly effective. But the company would not respond to the photographer's efforts. They dropped out

of pose with distressing frequency and insisted upon putting their own ideas of the photographically picturesque into practice.

Finally, after half an hour of rearrangement and expostulation, Sarony produced a satisfactory grouping, and aimed the camera. Then he paused. Something was wrong.

The dress suit worn by the star draped in a manner that offended his artistic eye, and in a minute he was painting new curves and high lights upon it with a soft brush and powdered chalk. The star was turned and twisted about as if he were nothing more than a painter's mannikin. His clothes were probably ruined, but neither actor nor artist seemed to think it a matter of small consideration. A final dab of the chalk and Sarony stepped back to survey the general effect.

The leading comedian's hair was too sparsely sprinkled in front, and the altitude of brow which resulted gave him a grave and erudite aspect. Without a word Sarony stepped up to him and dusted over the obtrusive scalp with a brushful of sepia. It made the comedian look five years younger.

Back went Sarony to the camera, up rose his warning finger, snap! and the picture was taken.—*N. Y. Commercial Advertiser.*

The Recent Discovery of two Portraits of Lincoln and Grant they had Taken Together.—A remarkable photograph, or rather a pair of photographs, has recently been produced by the Treasury Department. It is a reproduction of an old proof that has lain among some rubbish for years. On one side of a large card is a wonderful likeness of Abraham Lincoln, with his beard, and on the other side is a speaking portrait of General Grant in uniform. The portraits are of the head and shoulders only, and contain many of the blemishes that are found on untouched prints. These photographs have a curious history. They were taken in the spring of 1864, when Grant came to Washington to receive from President Lincoln's hands his commission as Lieutenant General.

It was suggested that the two distinguished men get their pictures taken together, and accordingly they went down the street to an avenue photographer. The first sitting did not please the artist. There were some faults in the negative that he did not care to take the trouble to eradicate, or that he could not, and so he destroyed the plate without printing any but a couple of proofs that were untoned and unmounted. They were thrown among some rubbish that appears to have fallen into the hands of a curio seeker.

They have never been touched until recently, when they were turned over to the official photographer of the Treasury department, who copied them, producing two of the most valuable portraits in existence. The President had a newspaper in his hand, the edge of which shows in one corner of the picture. General Grant's uniform coat and vest are negligently unbottened, and one of his hands showed a trifle

The portraits have been pronounced by all who have seen them to be wonderful likenesses. The moles on the right side of each face—Lincoln's was lower than Grant's—the wrinkles, the unbrushed hair on the forehead, the heavy brows, all bring to the memories of those who knew the two men a vivid recollection of them as they lived.

Artistic Photography.—At no very distant date, the taking of a perfectly satisfactory, technical negative will be a matter of scientific certainty and accuracy—in short, a science easily learned. Such is the case, unwelcome as this truth may be to the photographer; all that will be left to his "taste" will be the "selection" of the view, for even the printing papers will be scientifically adjusted to the negatives. That knowledge which proclaims the true artist—viz., analysis, omission of certain details, emphasis of tones or detail, the adjustment of harmonies, etc.—are and will always be quite beyond his control. In fact, all his medium will prove is that he has "good taste" such as any tourist may have who does not take a photograph at all. If a photographer with "good taste"—there are a few—wishes to become an artist he must learn one of the graphic arts, and use his "tasty" photographs as hints for movement, etc.—as the raw material for his art.—*Magazine of Art*

A PHOTOGRAPHIC CAR.

The Pennsylvania Railroad Company has fitted out a car especially for photographic work, according to the *Philadelphia Ledger*, modelling and furnishing its interior from designs and suggestions of the practical operator, whose life for five months of the year would be spent within, and from whose modern dark-room some of the finest railroad views of the age would be developed within a few hours after capture.

To all appearance from the outside, car 1382, save an elevated platform on the top and the name "Photographic Car, Pennsylvania Railroad," is identical with the regulation coach. This elevation is half a foot high and covers an area of some six feet square. It is especially constructed for supporting the instruments and cameras, where a commanding view is desired at points where a foot or tripod hold could not be found on the mountain's steep side. In length the car interior is 46 feet, in width 8 feet, and from floor to ceiling in height about 10 feet. It is fitted with steam-heating apparatus which is not a bit amiss in the mountains, the air-brake appliances, with a precautionary measure taken, by having a hand brake operated only from the interior of the car, whereby the deep laid design of tramp and small boy is often thwarted and a possible wreck prevented when the car stands alone on a heavy grade.

The forward part of the car for some 20 feet is furnished and decorated, with the exclusive end in view of promoting the comfortable living of the operator and his assistants, furnished as it is with parlor car chairs and a commodious desk, well lighted. The walls are adorned with road schedules and maps, framed photographs and rare prints, ranging from the many views along the line of the railroad to points in South America and Europe, and a rare series taken during the Transit of Venus Government Expedition of the "Swatara" in 1874 and 1875, for which Mr. Wm. H. Rau was also the official photographer. Two modern folding plush sofa-berths extend their tempting softness to the men after a hard day's mental and physical work, and add a decidedly finished appearance when made up into sofa-seats during the day. In case of necessity, should a stop be compelled over night at a way station, a supply of cots can be brought into requisition for use of conductor, engineer and crew, but this is not likely to

happen any more than a call for the use of the cooking stove and utensils, for the car is a "personally conducted" one, and running on the schedule of a special train, manages to stop over night where the hotels have a table record.

The dark room is in the center of the car, running for a distance of 12 feet in length and 5 feet in width, equipped with ruby and orange windows, negative racks and all developing facilities, together with a tank holding a 300-gallon water-supply. The system of perfect ventilation, without allowing light to penetrate the dark walls and ceiling of this jet black apartment, is accomplished by a 4-inch opening where the side wall meets the floor, and built out from this is a false side running to the roof and angled to an opening in the car, thus allowing a free passage of air, but not a ray of light. In this room may be seen the most complete batteries of lenses in active use in this country, starting with the tiny Kodak, and advancing along the set to the orthochromatic, rendering color values, and the case holding a valuable interchanging lens, making nine different sizes or combinations of the one view,

All these are eclipsed, however, by the immense panoramic landscape camera, which takes a picture on the one negative 4-feet long and 1½-foot wide, which embraces an angle of 165 deg., and obviates the distortion and uncertainty so often encountered in the case of photographs taken by the sectional method. It is claimed to be the only camera of its kind in the world, designed somewhat on the same model as the one at the Paris Exposition, but taking a much larger and more accurate picture, and, in many ways, far in advance of this French camera which was the wonderment and admiration of the representative world assembled at the Exposition. Far back in 1855 a man named Holterman, at Sidney, New South Wales, erected, at enormous expense, a camera, known as the Great Revolving Lens, which is recorded as taking but one negative on a glass plate, 3 x 4 feet, and then, with this world record of one picture, it was never used again. Probably had the flexible plate been known and in use at that time Holterman's results may have been household words to-day, but, mainly due to their non-existence and the cumbersome weight and immovability of the camera proper, it met the fate of a rich mine with the ore in view, but machine facilities not invented for working it.

Every precaution is taken for the careful transport of the very valuable plates, and the rare portion of the car is devoted to the trunks built and padded for carrying the immense store—of 300—18 x 22 and thirty panoramas.

The Editorial Table.

"Pictures of East Anglican Life," by P. H. Emerson. We have received from Dr. P. H. Emerson, through Mr. F. C. Beach, of the *Scientific American*, a copy of this attractive work. There are ten pictures in number, reproduced by a high-grade photogravure process from Dr. Emerson's original negatives. No letter-press accompanies these photogravures, except a brief "Preface," pasted on the inside of the portfolio which contains the pictures, and some characteristic notes by the author, "To the Student." It will be remembered that the work was originally issued with letter-press, and many more plates; but as many of the plates began to show signs of wear and tear, it was decided to issue no more copies of the work in that form. It seemed a pity, however, to destroy all the plates, since many of the best (having been reproduced by a new process) gave prints nearly perfect. It was therefore decided to complete the advertised number, namely, 75 of the copies of India proof, and 500 copies of prints, by continuing the publication in portfolio form, giving ten of the best plates and destroying all the others, which has been done. The ten pictures included in the present issue of the work are as follows: I. "In the Haysèl;" II. "The Poacher;" III. "A Stiff Pull;" IV. "Colts on a Norfolk Marsh;" V. "The Fringe of the Mere;" VI. "A March Pastoral;" VII. "Where Winds the Dike;" VIII. "In the Barley Harvest;" IX. "The Toad in the Path—Early Spring in Norfolk;" X. "Haymaker with Rake." Of these selected plates the author considers "A March Pastoral" best, and "Where Winds the Dike" second best, but all are very good and characteristic specimens of Dr. Emerson's work, in accordance with his views on the practice of photography, as laid down in "Naturalistic Photography." There is no publisher's imprint on the work, though we presume it may be obtained from Sampson, Low & Co., of London, who published his "Naturalistic Photography."

Die Photographischen Objective, ihre Eigenschaften und Praefung. Dr. I. M. Eder. Wilhelm Knapp, Halle a/S, publisher.

The 4th part of Vol. I of the author's "Ausfuehrliches Handbuch der Photographie."

The first chapter, an introduction to photographic optics, written by Dr. A. Steinheil, conveys instruction in the optical part of photography, and should be read carefully by beginners. The following chapters on historical matter; the construction of lenses—single achromatic, aplanates, euryscopes, rectilinear and portrait lenses; on the use of the diaphragm; the tests for and selection of lenses, occupy the main part of this interesting book. The last chapter is devoted to the calculations of correct time of exposures. Photogravure portraits of Dr. A. Steinheil, Fr. von Voigtlaender and Joseph Petzval embellish the book.

"A Practical Guide to the Use of Albumenized Paper,"* is the (translated) title of a work recently published in Paris, by the "Société Générale d'Editions." The editor, L. Mathet, has written it particularly for amateurs, and it seems very complete for their use. The various kinds of paper employed, sensitizing, drying, exposure, printing-frames, shading the background, washing, toning, fixing, trimming, mounting, and burnishing, each have portions of chapters devoted to them; and there are, moreover, two plates, each having two prints showing, respectively, a print too weak, another correct, a third apparently over-printed, in order to allow for loss of strength by toning; the fourth, the result of shading thin portions of the negative during printing.

* "Guide Pratique Pour L'Emploi du Papier Albuminé," par L. Mathet. Paris, 1891. Société Générale d'Éditions, 24, Boulevard St. Germain. 8vo, paper, viii & 78 pp. 2 fr. 50 c.

Utah Views.—Two more pictures of characteristic Utah scenery come to us from C. R. Savage, the artistic photographer of Salt Lake City. These pictures are even better than those which we mentioned in THE PHOTOGRAPHIC TIMES some time ago.

We have received advance sheets of the third volume of Messrs. David & Scolik's valuable work, "Die Photographie mit Bromsilber-Gelatine." Wilhelm Knapp, Halle a/S, publisher. This volume treats exclusively and exhaustively of instantaneous photography, describes a variety of apparatus, and the most approved of shutters.

"Jove's Autograph and how he was induced to write it on a photographic plate," is fully described by our friend and contributor, W. N. Jennings, in the September issue of *Electricity*. It is fully illustrated by specimens of Mr. Jennings' photographic work, several of the best being those which originally appeared in THE PHOTOGRAPHIC TIMES.

The October number of the *Review of Reviews* is remarkable, even in comparison with previous issues of that remarkable magazine. Its pictures of the contemporaneous world are wonderfully varied and complete. It contains several scores of illustrations, including about seventy-five portraits of people who for one reason and another are attracting particular attention at the present moment. This portrait gallery alone is worth many times the price of the magazine. Englishmen, Frenchmen, Germans, Swiss, Chilians, Hungarians, a great number of Americans, and men of divers other nationalities are portrayed in this October number. Particularly notable are the portraits of Lowell, Hugh Price Hughes, fifty of the most conspicuous Methodist leaders of the world, Andrew D. White, General Proctor, the lates Jules Grevy, the victorious Chilian leader as well as the suicide Balmaceda, and the members of the Swiss Federal Council.

"Those Who Live in Glass Houses."—The learned editor of the *British Journal of Photography*, in his issue of September 18th, takes occasion to criticize Mr. Waterbury's article on "Practical Development," which appeared in a recent number of our own magazine, as to "the extreme antiquity, nay, the threadbareness of his subject," though he admits it contains something of "*an interesting nature.*" In the same issue he prints part of a lecture delivered before an obscure society of England on "The Dawn and Development of Photography!" If our distinguished contemporary can give us a subject of more "*threadbareness*" than this we should like, or, rather, dislike, to see it.

Record of Photographic Patents.

460,264. Envelope for Photographs, Etc. Harry C. Lavette, Chicago, Ill.

460,328. Flash-Torch for Photographs. Milton R. Hamperley, Philadelphia, Pa.

460,417. Solar Camera. Frank T. Wilson, Stillwater, Minn.

A Colored Subject.—"What is your specialty?"

"Photographing in colors."

"Good, I've got a fellow here with a blackened eye, a red nose, and sundry blue marks on his face. Just help me get him in front of your camera, will you?"

Queries and Answers.

150 We have received so many inquiries as to Mr. Ives's "Composite Heliochromy," that we reprint for the benefit of all those wishing the information, the concise answers to the questions most frequently asked, which have been prepared and sent out by the Crosscup & West Engraving Co., who make the Ives process their specialty. They are as follows:

Process patented by F. E. Ives, July 22, 1890, No. 432,530.

Color Cameras, patents pending.

Color Projection Apparatus, patents pending.

Process consists in first making three photographs to represent the effect of the object photographed upon the three fundamental color-sensations (in accordance with the theory of color-vision now accepted by all scientists), and then combining these photographs by superposition, either by projection with a triple magic lantern, or in transparent gelatine prints.

The three negatives are made from the same point of view, and by simultaneous and equal exposure on a single sensitive plate, the operation involving no more trouble or expense than the production of an ordinary negative.

The lantern positives are made in the ordinary way, and projected with a single source of light, in an ordinary magic lantern, by simply replacing the ordinary projecting lens with a special front, so that the color-photographs can be interspersed among ordinary lantern pictures without causing any delays.

Composite Heliochromy may be said to have grown out of a suggestion made by Henry Collin, Queen Victoria's painting-master, in 1865, and afterward improved upon and carried out imperfectly by Ducos Duhauron and others, but made successful only by Ives's discovery and application of a new principle, and rendered easy and commercially practicable by his invention of special optical devices.

A history of the subject and detailed explanation of the process was published in the Journal of the Franklin Institute, January, 1891.

151 ROCKAWAY.—How can I prevent pinholes on ferrotypes? The developer is the same I have used now for ten years, the bath has worked well all summer, but all at once I find these little holes on every one of my pictures.

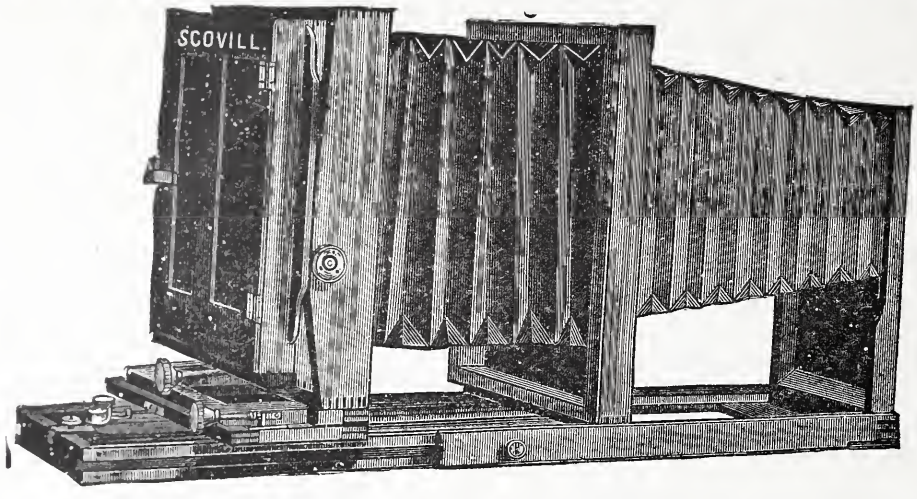
151 *Answer.*—Your silver bath is overcharged with iodide of silver. Discard it at once and make a fresh one. This is the most economical way for you, and when you have time rectify the old bath according to the Ferrotyper's Guide.

"I am very much pleased with the newsy and valuable contents of the PHOTOGRAPHIC TIMES," writes Edward Schakat, of Cincinnati, Ohio.

The most complete Directory of American Photographic Merchants and Manufacturers ever published will be found in the Advertisers' list of the great AMERICAN ANNUAL OF PHOTOGRAPHY FOR 1892. Ready December 1st. Almost half of the edition—16,000 copies—now sold. No other photo. book goes to so many actual buyers. Cost of full-page advertisement only $1.56 per 1,000 copies. You cannot get anywhere else an advertisement so cheap, far-reaching and effective.

AMERICAN OPTICAL COMPANY

UNRIVALED PORTRAIT CAMERAS.

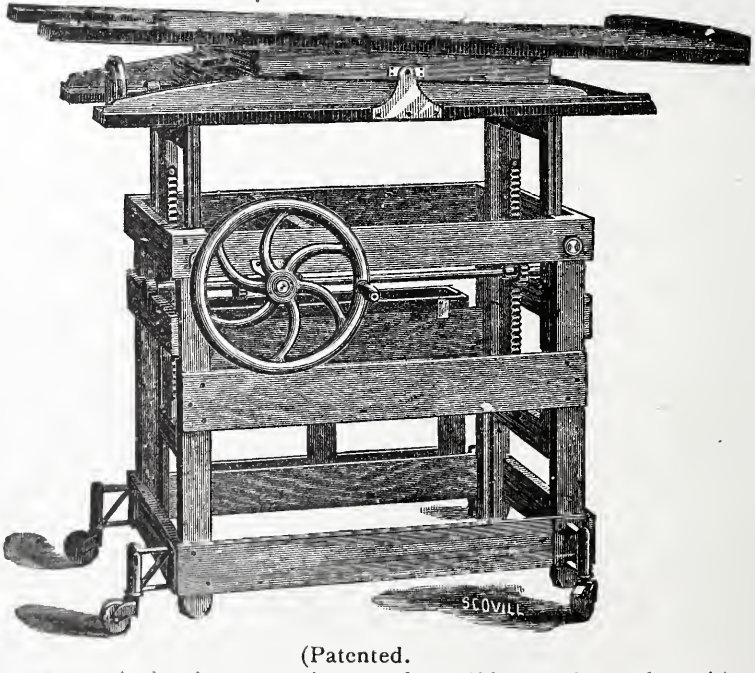


The American Optical Company Portrait Cameras are manufactured from the best mahogany, French polished, and have double bellows, vertical shifting front, the V-shaped wooden guide, telescopic platform, and Lever Focusing Attachment, by which the most delicate focus can be adjusted with the utmost facility and ease.

No.	Size.	To cover plate.	With Double Swing-back.
5....	8x10 ins.,	with platform 30 in. long	$38 00
6 ...	10x12 "	" " 36 "	48 00
7....	11x14 "	extension " 48 " and vertical shifting front	64 00
8....	12x15 "	" " 48 " do	72 00
9....	14x17 "	" " 60 " do	76 00
10....	16x20 "	" " 65 " do	88 00

No.	Size.	To cover plate.	With Double Swing-back.
11 ...	17x20 ins.,	extension platform 65 in. long and vertical shifting front	90 00
12....	18x22 "	" " 70 " do	100 00
13....	20x24 "	" " 72 " do	110 00
14....	22x27 "	" " 72 " do	130 00
15....	25x30 "	" 80 " do	170 00

THE "ELITE" STUDIO STAND. (PRIZE WINNER.)



(Patented.

These are the only Stands suited in workmanship and finish, also in size, to the large American Optical Co.'s Cameras, with their great length of bellows and extension platform. Practical portraitists cannot fail to admire the ease with which these stands can be adjusted at any desirable height or inclination, and the noiseless manner in which they may be moved from place to place, their elegant appearance and accurate construction.

Instead of the clumsy levers and racks, by which accurate adjustment of the platform was obtained in the older stands; the proper elevation and inclination are produced in the "Elite" stand by cog-wheel and snake screw, and the manipulation at one side by a wheel with handle, and within reach of the operator, so that he may adjust the height or inclination of this camera without taking his head from under the focusing cloth. By means of the wheel worked at the rear endof the platform, the horizontal position of the platform may be inclined upward or downward to a limit of 15 degrees. A great advantage from this movement, we observe, is that a true horizontal position—so difficult to obtain in the old camera stands—is, with these, an easy matter to effect. This is especially important to those who may use them for reproduction work. In the No, 2 size the platform is fifty-two inches long and twenty-five inches wide, and its length may be increased to seventy inches by an attachment which slides out forward, making it quite long enough for supporting a large copying camera. Then a semi-circular cut-out, to the rear end of the platform, is a convenience to the operator, who is thus enabled not only to stand closely up to the ground-glass, no matter how far the camera may have been pushed forward, but bending of the body is obviated, which is quite a necessity with all the older stands.

"ELITE" STUDIO STANDS.	No. 1 Size.	No. 2 Size.
PRICE, with Rack and extension for Plate Holder	$32.00	$36.00
Highest point from platform to floor	48	48
Lowest " " " "	32	32
Width of platform	22	26
Length of platform without attachment	45	52
" " with "	60	70

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Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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As the result of one advertisement in THE PHOTOGRAPHIC TIMES I have received over (100) one hundred letters from different parts of the country, and I must say that if I had occasion to advertise in any way I would certainly choose your paper on account of its wide circulation. A. SMEDLEY GREENE,
4,517 Main Street, Frankford.

Commercial Intelligence.

(Testimonial.)

1226 ARCH STREET,
PHILADELPHIA, Sept. 25th, 1891.

SCOVILL & ADAMS CO., New York.

Gentlemen:—The 30 x 40 American Optical Co.'s Reversible Back Camera and Extra Dry Plate Holder arrived all right and opened up in the most excellent condition.

We feel it is our duty at this time to compliment you, for the Camera shows, in every department of manufacture, that you have very superior workmen, even your packers deserve great credit for the care they must have taken in boxing this monster. No. 8 x 10 Camera could be made to work easier, and we know our customer will be almost as well pleased with it as he is with $1,000 bills. Experience shows us that for making large Cameras the American Optical Co. beat the world, and nobody will ever make a mistake if they place their orders for large Cameras either with them or with yours truly,

BUCHANAN, BROMLEY & CO.

Studio Changes.

Bradford, Vt. E. H. Allen's gallery was damaged by fire.

Business Notices.

FOR SALE.—The handsomest Portable Art Studios ever designed for actual, profitable service by the traveling photographer. It has dark-room with shaded window, side and sky-lights, doors, windows, floor, etc., all complete and tastely painted When set up it is ready for business. A substantial business building. Send stamp for catalogue. GRAND RAPIDS PORTABLE HOUSE CO., 104 Grandville Ave., Grand Rapids, Mich.

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Address, MRS. HARRIET E. NORTH,
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A COMPETENT STENOGRAPHER AND OPERATOR—Remington machine—desires a situation; is a good accountant, and can assist in office work, bookkeeping, etc , etc.; good references from last employers.
Address, MISS CURRY,
146 East 81st Street. New York City.

FOR SALE.—A good gallery in the sunny South; location, central Georgia; doing a good cash business at good prices; population, 3,300; nearest competition, eighteen miles; price reasonable. Address,
J. H. CARR, care of
B. C. NORRELL, 3½ West Alabama St.,
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FOR SALE CHEAP.—One photographic car on wheels, with or without outfit; one-half cost; speak quick.
E. D. STEWART, Kirk, N. Y.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
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SCOVILL & ADAMS CO.,
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BUCHANAN, BROMLEY & CO., Importers,
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FOR SALE.—A 5 x 7 Waterbury Detective Camera that has been used only a few days; has both horizontal and upright finder, and is in perfect order; will sell cheap. Address,
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FRESH Silver Paper DAILY, Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

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We desire to call the attention of our readers who may be interested, to errors in two items of our price list of Swift & Sons Portable Paragon Lenses, as catalogued on page 132 "How to Make Photographs," June issue; also in our catalogue of Photographic Lenses for 1891, page 4, as follows:

Price of No. 2 should read $21 instead of $30.

Price of No. 8 should read $57.25 instead of $52.25.

The reputation of these celebrated lenses is fully sustained in this country, and we are being favored with glowing testimonials from all who have tested them.

THE SCOVILL & ADAMS CO.

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EXCHANGE.—A fine damascus double gun, in A1 condition, for a No. 5 or 6 Somerville or some lens of similar style and size; correspondence solicited.

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We have received a small quantity of this new and promising developing agent, and offer samples of it at the rate of 25 cents per 1 gram.

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BACKGROUNDS, a large stock.

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FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address

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A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.

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TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

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THE OBRIG CAMERA CO.,
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Special agents for the Platinotype Process. Printing and Developing done with greatest care.

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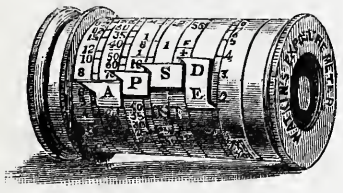
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With one Exposure Ribbon and Book of Tables....$7 50
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This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. Write for testimonials and particulars—free.

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DO NOT BUY A LENS UNTIL YOU TRY A BECK.

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When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

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We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
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Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of Nc. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

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Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.00.

For particulars apply to
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Will do everything a Plain Plate will do, and

SOME THINGS A PLAIN PLATE CAN'T TOUCH,

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PLATES AND CELLULOID FILMS.

READ THE OPINION OF AN EXPERT PROFESSIONAL:

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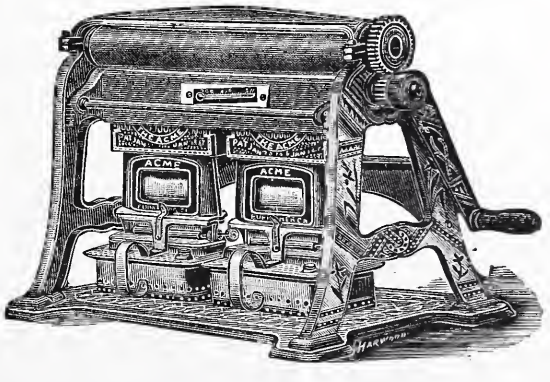
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8.—The Acmes are full nickeled and the most beautiful Burnishers ever made.
9.—This Burnisher is the simplest of all.
10.—Heats in five minutes.
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PRICES.

11-inch—Oil, Gas, or Alcohol,	**$25.00**
15 " " " "	**35.00**
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Patented July 12th, 1887.



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Perforators for perforating same, under our *Stamp Patent* (also issued July 12th, 1887)..... 35 00

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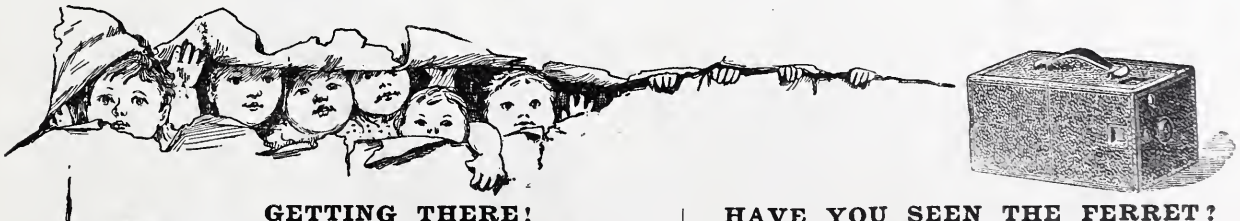
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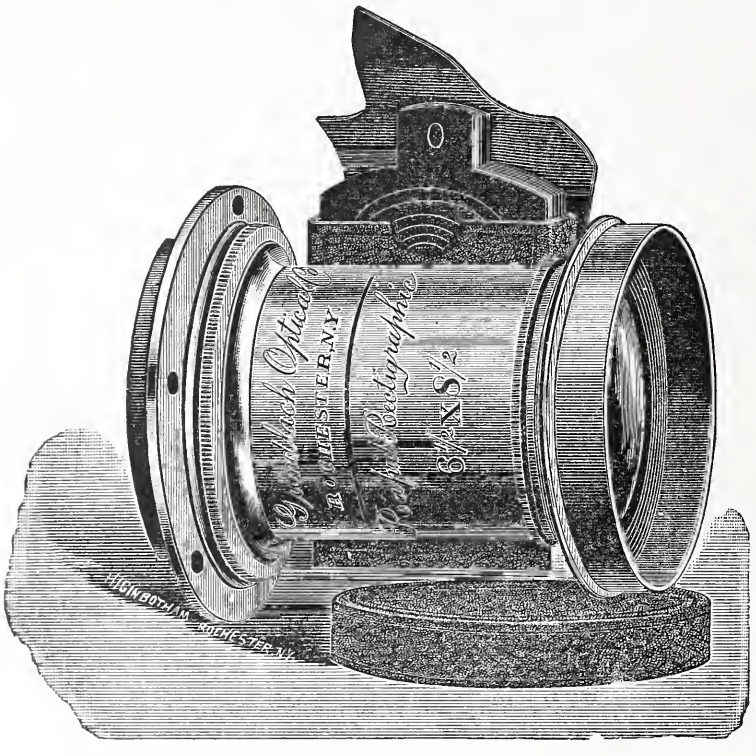
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TWO APLANATIC TRIPLETS

of a novel form, producing a degree of *Optical Superiority* and *Flatness of Field* which has not been attained heretofore in Photographic Lenses.

The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

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11 " "	0 62	18 " "	1 00	25 " "	1 40
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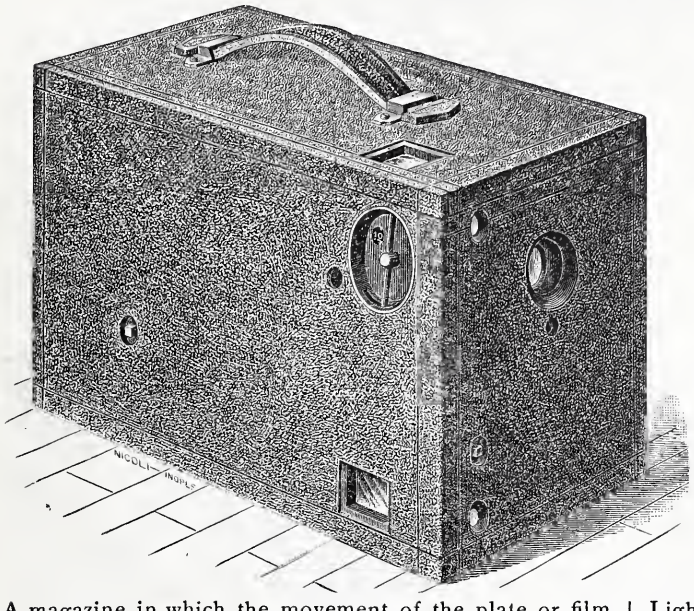
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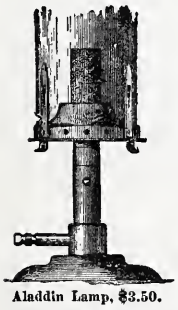
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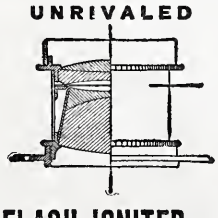
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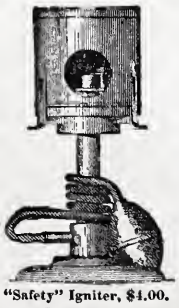


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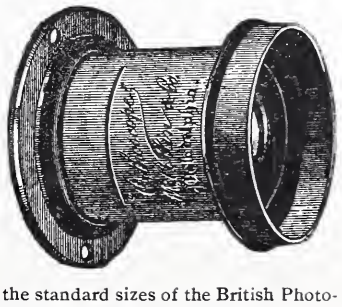


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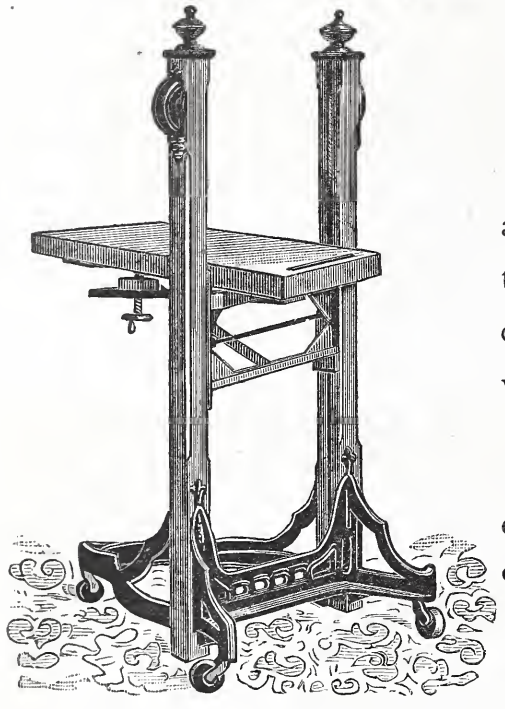
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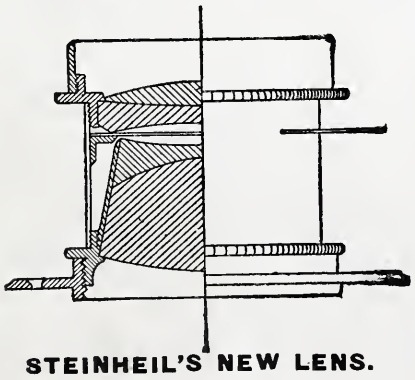
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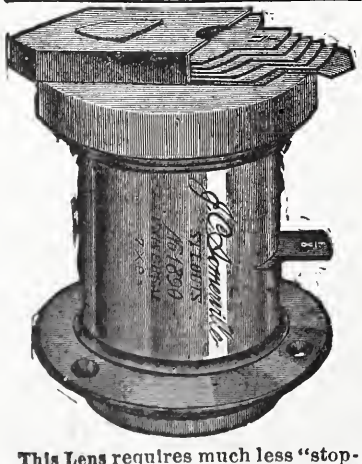
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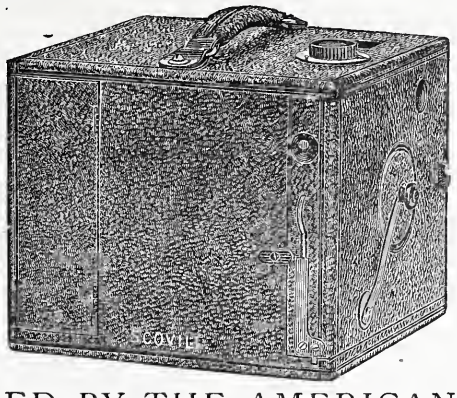
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The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

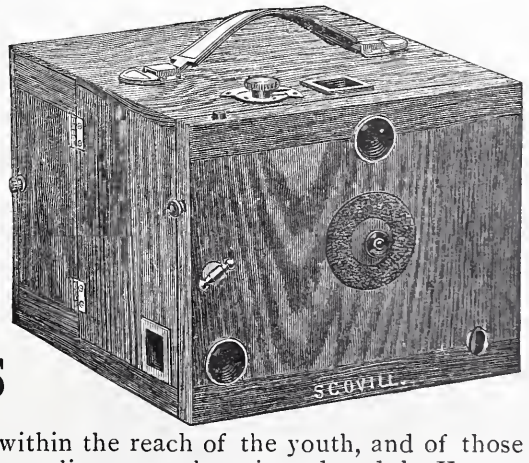
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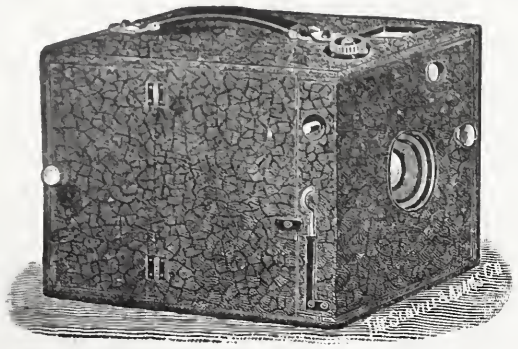
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When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

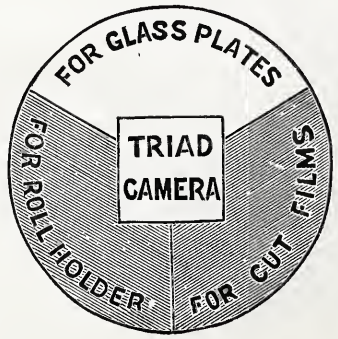
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day; that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

The TRIAD Camera is fitted with the latest improved Roll Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms—the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.



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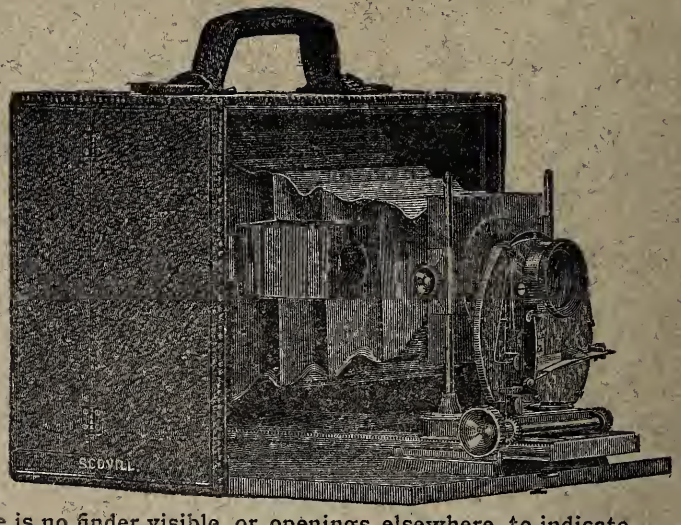
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To open the Camera press on the knob, visible on the front, thus allowing the front to slide, and then swing under the bottom of the Camera. The platform or bed of the Camera is carried with this board, and, by turning the wheel, the bed is made perfectly rigid. It will at once be apparent how the front may be racked outward until the front end of it is over the lines which indicate the focus for various distances. The figure 60 on the focusing scale indicates the focus for 60 feet or beyond. The finder of the Camera is now placed on the top of the front board, and is therefore always at the same angle as the lens: the finder is a reversible one, which may be turned when the Camera is fastened to a tripod, or is held, not with the handle upward, but with the handle on the side in order to secure a vertical instead of a horizontal view. The front board is arranged to slide upward when taking a tall building, church spire, or any high object, and it is also arranged to swing, to still further aid in that endeavor.

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On the same principle, objects situated above the Camera level may be taken by reversing the position of lens and finder.

PRICE.

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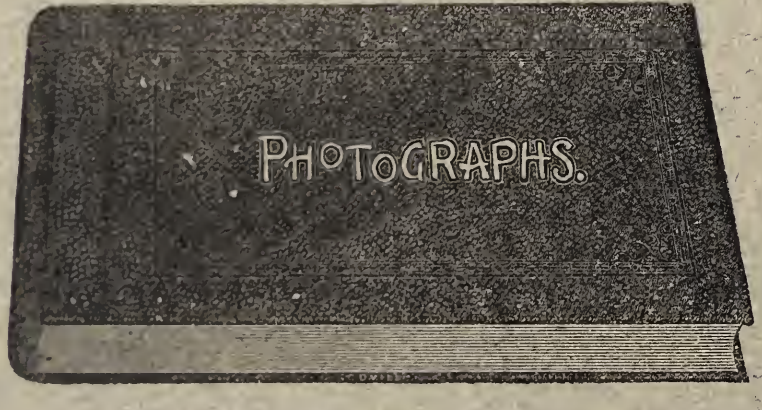
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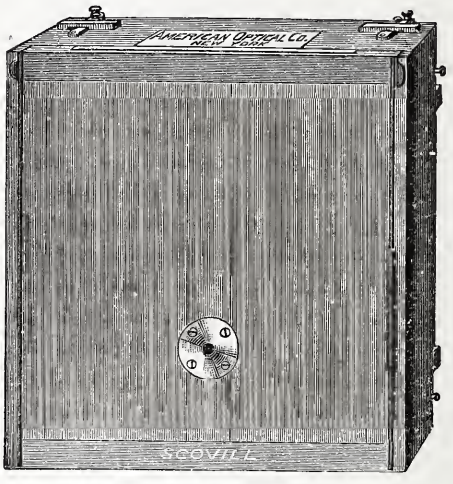
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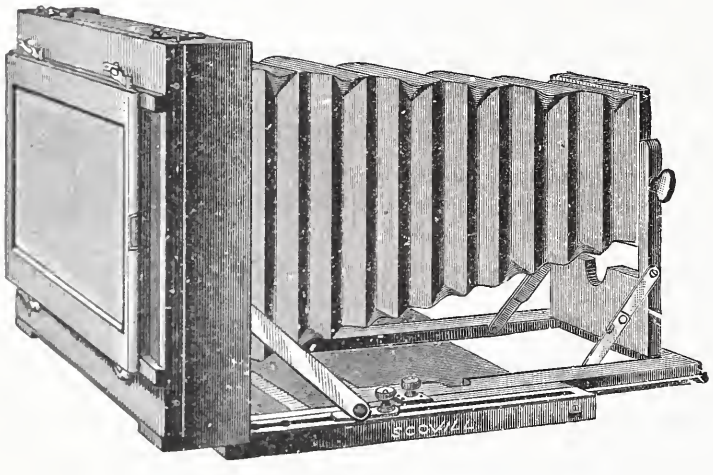
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THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, OCTOBER 16, 1891. No. 526.

A VERMONT HAY-FIELD.

THE pretty rural scene which embellishes our magazine this week was made by Mr. W. H. Crocker, an amateur of New York City. "The negative was not submitted as an example of high grade photography, but simply as evidence that remarkably satisfactory results can be obtained with low-priced lenses, when properly used," writes Mr. Crocker. "The negative was made with a 5 x 7 Waterbury lens, using $\frac{f}{25}$, and an exposure of about four seconds. In this connection I desire to say that negatives made with this lens compare very favorably with those of my friends who use very much higher priced objectives No man can shoot well, ride well, or row well, unless he is thoroughly conversant with all the peculiarities of his gun, his horse, or his boat. This applies equally well in photography, and certainly many a low-priced lens has been hastily condemned because its peculiarities have not been studied, and because the owner has not applied himself to a thorough knowledge of all its possibilities. The negative was developed with eiko-cum-hydro."

FIXING BATHS.

IN the September 19th issue of "Wilson's Photographic Magazine," our esteemed friend, Dr. J. J. Higgins, has an article on the fixing bath which is worthy of our attention. It is a well-written article, in Dr. Higgins's characteristic style, but presents a side of the question which seems quite peculiar for one of Dr. Higgins's intelligence on photographic subjects. He takes occasion to denounce the acid bath, and for reasons which it is quite difficult for us to understand in view of the experiments and observations which we have made.

He says the bath promotes the formation of sulphide of silver on the negative, to such an extent that silvered paper in close contact with it becomes stained. How the acid bath can do this it is difficult to understand, provided the bath is properly compounded, the negative fixed for a sufficiently long time to dissolve the argento sodium hyposulphite formed during the process, and is finally well washed. The remedy Dr. Higgins applied to the evil is as quaint as the complaint is odd: he washed the plate for a long time to remove the sulphide of silver, or "sulphur," as he naively calls it. But neither of these substances are soluble in water, and all the washing in the world would not remove them from the gelatine.

Of the four fixing bath formulas he mentions, we will confine ourselves to the two he finds fault with, though we must say that irregularities in fixing a gelatine emulsion plate are very likely to occur with any one of the baths if compounded as he indicates.

The Alum and Hypo Bath.—Alum and hypo mixed together results in decomposition of both of the two substances, and under the evolution of sulphurous acid, which is absorbed to a great extent by the aqueous solution and may continue to act injuriously even after the other decomposition products, namely, sulphur and hydrate of aluminium, are removed. A better method of making a mixed alum and hypo bath is that recommended by Eder, who adds neutral sulphite of sodium to an alum solution till the evolving of sulphurous acid becomes perceptible, and the white precipitate formed is not re-dissolved in the solution. When adding such a solution to one of hypo, the mixture remains clear, and does not throw down any precipitate. We have used this bath when alum was necessary, and have invariably found it to act well, and to keep clear for several weeks.

The Acid Fixing Bath.—Dr. Higgins' way of preparing the acid fixing-bath is quite unusual, differing from others in the most essential point, for he adds acetic acid to the mixture of bisulphite of sodium and hypo. When an organic

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acid like tartaric or citric is mixed with neutral sulphite of sodium and then added to the hypo bath, the solution will remain clear and act well as a fixer. This was the original acid fixing bath. But Professor Alexander Lainer modified the method of mixing acid with the neutral salt first by applying at once the acid bisulphite to the hypo-sulphite. And this constitutes the acid fixing bath now in universal use. But when acid is directly added to hypo, no matter what other ingredients may be in the solution, sulphur is separated and sulphurous acid evolved.

Were Dr. Higgins to employ Lainer's fixing bath, the formula for which has been given repeatedly in The Photographic Times, he would not complain of sulphuration of his negatives; for after using a bath of that description for weeks and months, and after its fixing properties had been nearly exhausted, we have not been able to find any indication of the formation of sulphide of silver in it, or on the negatives fixed therein.

All other conditions being the same, the time required to fix a negative is the same in the acid as in the plain hypo bath. But the alum-hypo bath, because of the hardening properties of the alum, necessarily requires a longer time to fix than either of the others.

EDITORIAL NOTES.

For optical lantern work the photographer is *facile princeps* where pictorial slides are in question, and many of the fraternity take up the lantern and projection for scientific illustration generally. Those who have endeavored to exhibit polarized light effects are aware how costly the usual Tricol prism used for the purpose is, and how difficult to get one of large size. At the meeting of the British Association a new form, of comparatively trival expense, which would be very useful for the purpose, was described; Professor Thompson is the inventor. The new polarizer consists simply of a piece of polished black glass (which acts as a mirror) covered with a piece of clear glass. There is by this means less loss of light than when the plain black glass alone is used, and, also, increased polarization. In using this appliance the light from the lantern is reflected on to it by means of totally reflecting prism. After the first polorization the light is again turned back into its original axis by a second reflecting prism, which latter instrument requires most careful annealing to prevent its interfering with the character of the polarization.

Our European brethern of the camera are not slow to take note of the interesting and important paper, by Mr. James H. Stebbins, Jr., first published in the *Journal of the American Chemical Society*, on the subject of the developing powers of hydroquinone when treated with 66-degrees sulphuric acid. The first aim of Mr. Stebbins was to obtain a more soluble substance than the unaltered quinol; and treating it as above, he obtained a sulpho-acid —accurately, hydroquinone mono-sulpho acid. The experiments so far recorded with this new developing agent have given fairly satisfactory results, the new acid being slow in action and giving a reddish brown tone in the negative. But, as Mr. Stebbins says, he is continuing his researches, and will submit the further results to the judgment of those interested.

Attention has been drawn to the fading of the pink tint of albumenized paper, which in a strong light will, even in samples from the first manufactures we have, fade away in a very brief time. Now there was some papers of so deep a hue that it is positively merciful to the reputation of the photographer to let it frill; yet, all the same, other prints are of such a pale, delicate tint that actual colors can scarcely be said to characterize them, though the effect is very decided, and very good when a comparison with white paper is made. But seeing this pale flesh is so evanescent, as proves to be the case, undecidedly consider that manufacturers ought to see to it. Let them consult with some manufacturer of coal-tar dyes, and obtain his judgment as to a fairly permanent dye, and use it in preference to the present agent, whatever that may be—probably fuchsine, very cheap and very fast.

The use of soap as a lubricant in burnishing prints is now very old. Some operators apply it by rubbing the print with a piece of flannel which has previously been rubbed against a piece of soap, while others use a spirituous solution of the sapenacious agent. A word of advice: Choose a piece of good wash soap, which is usually a pure soap, and not a mixture of resin, silicate of soda and a series of other substances useful as detergents but not soap and not so clear as soap. Further, look with suspicious eye upon the very clear, transparent-looking soaps. Properly made, that is, by dissolving good soap in spirits, filtering, and then evaporating to dryness the product, we have the purest form of soap obtainable, and some photographers purchase the transparent soap to be sure of its purity, and consequent make injurious effect upon the print. But, such soap is made to a large extent by adding sugar to ordinary soap;

the transparent effect is produced, but, unfortunate is the photographer who uses a piece of such a sample for burnishing!

M. MAREY, who, working in a similar direction to Mr. Muybridge, has devoted many years to the photographing of various forms of animal life in rapid motion, may be said to have surpassed himself. Not very long ago he produced remarkable pictures of the moving animal-life in a small tank of sea-water, but now he has produced an apparatus capable of photographing flying insects. Every one is familiar with the rapid vibrations of an insect's wings, yet M. Marey has secured them—fixed them by the unerring hand of the camera. So marvelously rapid was the exposures that our readers will barely credit us when we inform them that the twenty-five-thousandth part of a second was the time occupied in recording each individual view.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 502.)

CHAPTER V.—*Continued.*

Farmer's Ferridcyanide Reducer.—The most "popular" reducer of the present day is probably that first recommended in 1883 by Mr. Howard Farmer (instructor in photography at the Polytechnic Institution, London), and described by him in detail in the "Photo. News Year-Book" for 1884. Make up the following solutions:

A. Ferridcyanide of potassium.....1 ounce
Water.....1 pint

B. Hyposulphite of soda.....1 ounce
Water.....1 pint

Soak the negative in the hypo solution for a few minutes; and then pour off the hypo into a glass vessel. Add to the hypo a few drops of the ferridcyanide solution (enough to make it sherry colored) and pour the mixture over the negative. Gradual reduction will take place. When the action stops, add a few more drops of the ferridcyanide if the reduction is not sufficient. Then remove the negative, wash well, and dry. The operation is best performed in a weak light. The mixed solutions do not keep.

Ferridcyanide (or *ferricyanide*) of potassium is commonly called red prussiate of potash. It combines with the silver of the image to form silver ferrocyanide, and then this is dissolved away by the hypo, the negative thus becoming thinner and thinner. The first action is expressed by the equation:

$$2Ag_2 + 2K_6Fe_2(CN)_{12} = Ag_4Fe(CN)_6 + 3K_4Fe(CN)_6$$

Silver *and* Potassium Ferridcyanide *produce* Silver Ferrocyanide *and* Potassium Ferrocyanide.

The hypo then acts as follows:

$$Ag_4Fe(CN)_6 + 4Na_2S_2O_3 = 4AgNaS_2O_3 + Na_4Fe(CN)_6$$

Silver Ferrocyanide *and* Sodium Hyposulphite *produce* Silver Sodium Hyposulphite *and* Sodium Iron Ferricyanide.

As the two chemical actions take place simultaneously, the reduction can be seen as it progresses, and arrested at any moment. This is one of the best points of the process. The mixture, however, does not keep well, so that it cannot be prepared and bottled for use, but must be made as required.

As stated in another paragraph, this method can also be used for reducing silver prints.

Belitzki's Ferric Oxalate Reducer.—The following reducer is due to Herr L. Belitzki, of Nordhausen.

Make up the following solution:

A. Ferric chloride.....10 grains
Potash oxalate ..... ½ ounce
Water..... 1½ ounce

Chemical combination will take place, and ferric oxalate will be formed, as shown by the equation:

$$Fe_2Cl_6 + 3K_2C_2O_4 = Fe_2(C_2O_4)_3 + 6KCl$$

Ferric Chloride *and* Potash Oxalate *produce* Ferric Oxalate *and* Potassium Chloride.

The ferric oxalate so formed is ready to act as our reducer; but we must also have some substance present which will dissolve or wash off the silver oxalate which will be formed. Such a substance is found in sodium hyposulphite. Make up, therefore, a second solution as follows:

B. Hypo..... ½ ounce
Water.....2 ounces

Mix this with solution (A), as given above.

When the negative to be reduced * is placed in the mixed solutions (A and B), the ferric oxalate at once combines with the silver of the image to form silver oxalate.

$$Ag_2 + Fe_2(C_2O_4)_3 = Ag_2C_2O_4 + 2FeC_2O_4$$

Silver *and* Ferric Oxalate *produce* Silver Oxalate *and* Iron Oxalate.

Then the hypo combines with the silver oxalate

*If the negative has been dried it should be well washed before reducing.

to form a soluble salt, which is washed off by the water.

$$Ag_2C_2O_4 + 2Na_2S_2O_3 =$$
Silver Oxalate *and* Sodium Hyposulphite *produce*
$$2AgNaS_2O_3 + Na_2C_2O_4$$
Silver Sodium Hyposulphite *and* Sodium Oxalate.

The negative must be carefully watched while in the reducing solution, so that it may not be made too weak. The action is, however, very steady and gradual. Occasionally the plate may be lifted out and examined by transmitted light.

The negative is finally well washed and dried. This method of reduction has been approved by that high authority, Dr. Eder, and is sometimes known as "Eder's" reducer.

A Reducer Contained in Used Ferrous Oxalate.—Instead of the mixture of ferric chloride and potash oxalate mentioned above, the green crystals deposited in all old solutions of ferrous oxalate developer may be used. This form of Belitzki's reducer is described in the *Photographic News* for 25th of January, 1884. The green crystals consist of the double oxalate of iron and potash. The reducing solution may then be made up as follows:

Green crystals	¼ ounce
Hypo	1 ounce
Water	5 ounces

Use as before; the chemical action is the same.

We see now the reason why negatives developed with *old* ferrous oxalate are usually *thin*. The ferric oxalate present acts as a reducer.

Belitzki's Durable Reducer.—As an improvement on the method just described, Herr Belitzki gave the following, in 1890.

Dissolve in the order given:

Water	200 parts
Ferric-potassic oxalate	10 parts
Sodium sulphite (neutral)	8 parts
Oxalic acid	2½ parts
Of sodium hyposulphite solution (1 to 4)	50 parts

This solution keeps well if filtered and placed in opaque stoppered bottles. It can be used immediately after fixing. It will be noticed that the proportions of this solution are given in "parts." This means *parts by weight*.

These methods of reducing with ferric oxalate are now usually assigned to Belitzki and Eder. But it is practically the same thing as the method for "clearing" negatives described by W. Willis, before the Photographic Society of Great Britain, in 1882, and commented on in the *British Journal of Photography*, for the 7th of July, 1882. And even before Willis, the method had been proposed by Monckhoven.

Lainer's Reducing Bath with Sulphurous Acid.—In the *Photographische Correspondenz* for 1890, A. Lainer recommends the following reducer to be used conjointly with his acid fixing bath.

Hypo	2 ounces
Sodium sulphite	4 ounces
Hydrochloric acid	½ ounce
Water	10 ounces

The negative must be left in this solution until reduction is effected; and the time required for this may be twelve hours. As sulphurous acid is given off, the vessel containing the solution must be provided with an air-tight cover, or it may be covered over and left out of doors.

Valuable Clearing-and-Reducing Agents.—For many years we have recommended that all negatives should be passed through the following bath, but they must first have been thoroughly well washed:

Ferrous sulphate	¼ ounce
Hydrochloric acid	1½ drams
Saturated solution of alum	4 ounces
Water	2 ounces

This clears in a marvelous way the yellow stain caused by development with pyro; and it also slightly reduces. The solution should be kept in motion (by rocking the dish) while upon the negative. Ten minutes in this bath will generally "clear" the negative, which must then be rinsed, and washed in running water for half-an-hour.

Another useful "clearer and reducer" is a saturated solution of alum (say 10 fluid ounces), to which half-an-ounce (or less) of strong sulphuric acid has been added. From two to five minutes in this solution will usually be sufficient.

Burton's Reducer.—Harden the gelatine film thoroughly by soaking for an hour in a saturated solution of chrome alum. Wash for ten minutes and dry. Now squeegee on the *back* of the glass a piece of sensitized carbon tissue. When dry expose to light (film facing the light) in a printing frame as usual. Remove and develop the carbon print by soaking in warm water. The second coating (on the *back* of the negative) will then correct any violent effects in lighting which may be produced by the original negative. This method is best suited for chalky black and white negatives, and requires a skillful operator. It is not a reducer in the sense of lessening or changing the substance of the image; but it "reduces" the violent contrasts caused by under-exposure or faulty lighting.

W. Jerome Harrison.

(*To be continued.*)

AN AMATEUR PHOTOGRAPHER IN PARIS.

The path of the American amateur photographer abroad is beset with a variety of difficulties. The freedom of movement at home and even in England is such that the constant annoyance of being watched by the police in all large cities on the Continent is almost unbearable. By amateur photographer I mean one with a complete outfit—tripod, camera, focusing cloth, and all. The fiend with the alleged detective camera is at best a base imitation. In France, and Germany especially, the action of the authorities tends considerably toward actual prohibition, and, even after the coveted permit is obtained, one must be extremely careful to avoid unlimbering an outfit near any of the numerous barracks or fortifications. This would undoubtedly lead to considerable inquiry, and possible arrest and incarceration; the latter being a contingency best appreciated by experience. At home the matter would be examined into at once, and if no misdemeanor was committed the suspect would be at once discharged; but abroad, owing to the amount of "red tape" involved, the alleged violator of laws is usually locked up for three days before an examination in his case can be had. However, to the discreet photographer, this is hardly likely to occur; but should an attempt be made to photograph anywhere without a permit, quite an amount of trouble may be expected. My own stay in the French capital gave me some valuable hints that may be of service to others, and so, without further introduction, I will give my two days' experience for the benefit of "whom it may concern."

Going to France on business, and, having but the two days mentioned, at my disposal, I decided, on arrival, to utilize the first day attending to business and sight-seeing, and the second day to photography. Attended by a guide I first sought out my business acquaintance, and that part being settled, I went the usual round of places of interest so well known to tourists. This occupied my time until late in the afternoon, when I informed the guide that I would need his services the day following, as I wanted to take some photographs. He looked startled, and promptly informed me it would be impossible. Naturally I inquired why. For an answer he led me through a number of narrow streets and into a long passageway, at the end of which was displayed a sign "*Etrangers.*" This, I learned, was police headquarters, department for transient visitors. I was ushered into a small room, all the walls of which were covered with shelves, upon which were arranged small boxes, numbered in order. Eight or ten men, in full uniform, were writing at some desks partitioned off from the rest of the room. My conductor politely removed his hat and asked something of the man who seemed to be in charge of the office.

The guide turned then and asked my name. A clerk was called and consulted, and directly after the head man had one of the boxes referred to in his hand. To my surprise I found he had quite a record of me. My name, address, both at home and abroad, what I was in Paris for, how long I expected to stay, etc. To say I was astonished would mildly express it. I had only been in the city eight hours. Having located me, the head man asked the guide a number of questions and then said, politely, that if I would make a "demand" in writing, hand my passports and papers in to the department, in three weeks I might get a reply. I said that would not do at all, as I was only going to be there one more day. The department announced that it was unfortunate, but there was no other way. After leaving, the guide said that I must give up the idea of taking pictures, as I would get into trouble if I persisted. Nothing more being possible that evening, I dismissed the guide and went back to the hotel. I confided my trouble to the hotel-keeper and said I must take some negatives the following day. We discussed the matter fully, and he said he would try and arrange it.

Next morning I called upon my friend, the hotel-man, and learned that he had found an amateur who would place his personal permit, and also the use of his dark-room, at my service. This was very gratifying and was accepted at once. I hunted up the guide, and, with many misgivings on his part, we started. We first photographed the "Madelaine," and then the "Place de la Concorde." Leaving there, we crossed to the "Chamber of Deputés," and "took" "Pont de la Concorde." From here to the "Hotel des Invalides" and "Tomb of Napoleon" was a short distance, and a few moments later found us before the "Eiffel Tower" and the "Trocadero." The next point was the "Temple," made famous by the incarceration therein of Marie Antoinette. My plates having given out, we called a cab and were driven to the hotel. Plates were changed, and we started for the "Arc de Triomphe." Here two policemen made themselves rather officious, to the dismay of my guide, who at once retired to a distance. As I could not speak French nor they English, we were somewhat at a disadvantage, but I must have appeared harmless, for they soon left me, much to the relief of my guide, who now put

in an appearance. The two poorest pictures I obtained that day were the negatives of the "Arch," and I attribute it to the interview with the policemen. From here we successively visited the "Gardens of the Tuileries," "Arc du Carrousel," "Gambetta's Monument," the "Louvre," "Pont Neuf," "Hotel de Ville," "Consergerie," "Tour St. Jacques," and "Church of Notre Dame." My plates here gave out again, and, it now being four o'clock, I decided we had done enough. I believe the guide thought so too, for he looked tired out. He explained to me that the reason he was afraid of the police was that they might suspect my permit, and take me to head-quarters, where they would soon learn of the deception, and it would have been awkward for both myself and the amateur who had so kindly accommodated me. However, "all's well that ends well," and in spite of the police and the want of a permit, I obtained twenty $6\frac{1}{2}$ x $8\frac{1}{2}$ negatives.

R. E. M. Bain.

A NEW METHOD OF INCREASING THE LIGHT-SENSITIVENESS OF ASPHALT.

OF all the asphalts which occur naturally, the Syrian is the one most used, although without doubt other kinds of asphalt show a more or less noteworthy light-sensitiveness.

The experiments to utilize asphalt for heliographic etchings on metal are almost as old as photography itself, and the oldest experiments which Niepce made for the preparation of photographic pictures were performed with asphalt.* Niepce used the asphalt dissolved in oil of lavender and spread in a thin film on polished metal plates for the preparation of photographic pictures in the camera obscura. The duration of the action of light was naturally very long, and the pictures thus obtained left much to be desired.

The later experimentalists, especially the nephew of the above-named Niepce de St. Victor, closely studied the asphalt method, and endeavored to increase the sensitiveness of the film and thus to reduce the duration of the action of light as far as possible. On the 23d May, 1853, Niepce de St. Victor presented to the Paris Academy his first treatise on this subject. He dissolved the asphalt in oil of lavender, coated a steel plate with it, and developed the image formed on it by light with a mixture of three parts of rectified petroleum and one part of coal-tar benzin. On the 23d October, 1853, he described a solution of asphalt, to which a fifth of its weight in wax had been added, in benzine as a light-sensitive varnish. There he gave, for the first time, a process of increasing the sensitiveness of the asphalt, since he flooded the plate coated with the film of asphalt with anhydrous sulphuric ether to which a few drops of oil of lavender had been added. Niepce observed that by this treatment (by which obviously any constituent of the asphalt which was prejudicial to its light-sensitiveness was partly washed off) the sensitiveness of the film was actually increased. Oil of lavender instead of benzin for the preparation of the asphalt varnish gave him more sensitive preparations, which, however, had the fault of very slow drying. In a third treatise which Niepce published on the 2d October, 1854, he tried to attain the above end in another way, since he dissolved the powdered asphalt in benzole after a day's exposure to the action of light and air, by which process it was made more sensitive, or he obtained the same effect by exposing the varnish itself for a shorter time, three hours, to the action of sunlight in an open vessel. As solvent for the asphalt, Niepce used benzole, to which he added about 10 per cent. of oil of lavender, or, better still, oil of lemon, by which addition the sensitiveness was increased and the film made more elastic. Niepce recommended a 2 per cent. asphalt solution and a mixture of five parts of petroleum with one part of benzole as developer. The next important work was undertaken by Dr. R. Kayser, of Nuremberg ("Untersuchungen über Natürliche Asphalte," Nürnberg, 1879, F. Korn). R. Kayser did not trouble himself with experiments which had for their purpose the increase of the light-sensitiveness, but separated by analysis the asphalt into three constituents, which were separated by their solubility into three different solvents.

He treated the powdered Syrian asphalt with boiling spirit (sp. gr. 0.835), and extracted from it by this means 4 per cent. of an oily yellowish-brown substance smelling of bitumen. This had a composition of $C_{32}H_{45}S$, which corresponds to 6.97 per cent. of sulphur. The marc from the treatment with boiling spirit was extracted with boiling ether (sp. gr. 0.725), by which 44 per cent. by weight of the raw asphalt was dissolved. The part soluble in ether was a brownish-black resinous mass without smell, which melted at 65 deg. C. Its composition corresponded to the formula $C_{64}H_{92}S_3$, which gave a proportion of 10.04 per cent. of sulphur.

The constituent, insoluble in ether and alcohol, which dissolves easily in chloroform and benzole, with greater difficulty in turpentine and petroleum, is a resinous, brittle, odorless black mass which melts at 156 deg. C. This corresponds to a formula of $C_{32}H_{42}S_2$, or a proportion of 13.06 per cent. of sulphur.

The first resin, soluble in alcohol, which we will, for brevity sake, call *A* resin, is not light sensitive; only the two other resins (*B* and *C*) are sensitive to light, and Kayser found that the *A* resin, insoluble in alcohol and ether, possessed the greater sensitiveness.

These researches resulted in the separation of asphalt into its constituents for photographic practice, and the use of the light-sensitive variety only.

There are three principal methods.

(1) Solution of the asphalt in chloroform and precipitation with three to five times the quantity of ether.*

(2) Washing the powdered raw asphalt with ether, and the use of the dried marc for the preparation of the light-sensitive varnish. (R. Kayser's method.)†

(3) Solution of the powdered raw asphalt in the least quantity of German turpentine, and precipitation with several times the quantity of ether. (Husnik's method.)‡

* J. M. Eder's "Geschichte der Photographie" (Ausfnhrlich. Handbunch der Phot., 1891, vol. i., p. 118).

* "Photo. Corresp.," 1880, p. 241; "Mon. de la Phot.," 1880, p. 176.
† "Photo. Corresp.," 1881, p. 95.
‡ "Photo. Notizen," 1886, p. 3.

My own Researches, to make Several Resins Light-Sensitive by the Incorporation of Sulphur, or the Light-Sensitiveness of Asphalt by the said Treatment to Increase.

Kayser's above-named researches have proved that Syrian asphalt in all its constituents contains sulphur, and the light-sensitiveness increases with the proportion of sulphur. The *A* resin is the most sensitive, and the sensitiveness of the asphalt stands in intimate connection with the greater or lesser presence of this resin in the asphalt.

With my experiments I set myself the problem to make the Syrian asphalt, as a whole, at least, as light-sensitive as the up till now known light-sensitive preparation of asphalt, where possible, however, the sensitiveness of the same to increase, so that it should surpass that of the known preparation.

Observation that Colophony and other Resins may be made Light-Sensitive by the Action of Sulphur.

The previously stated fact that the light-sensitiveness of the asphalt stands in intimate relation to the proportion of sulphur, induced me to try whether it was not possible to make other resins—such as the coniferous resins—sensitive to light by suitable treatment with sulphur.§

When colophony is melted and about 15 per cent. of sulphur introduced into the clear liquid mass, it dissolves completely. If the temperature is increased above 180 deg. C., the mass becomes brown with the evolution of sulphuretted hydrogen, becomes dark-colored, and, after a few hours, quite black. The evolution of gas is then slower and finally ceases almost entirely.

If this is now allowed to cool, a black, pitch-like, shiny mass is obtained of conchoidal fracture and unpleasant smell, which contains sulphur, and shows different behavior as regards solubility to the original colophony.

If 4 gr. of this mass are dissolved in 100 c.cm. of benzole or chloroform, a deep brown, clear solution is obtained, which, poured on the sheet-zinc, gives, after drying, a thin golden-yellow film of resin. If this film is exposed to direct sunlight for a sufficiently long time under a suitable matrix, a picture is obtained after development with oil (and some French turpentine), which, however, does not show much power of resistance to dilute acids, which is peculiar to the asphalt pictures. This disadvantage and the proportionately low sensitiveness of the preparation make it unsuitable for the purpose of photographic zinc etching.

My trials were naturally now directed to the incorporation of sulphur with the natural asphalt and the increase of the light-sensitiveness of the same.

My Experiments to Make Raw Asphalt more Light-sensitive by the Incorporation of Sulphur.

For these experiments I first used Syrian asphalt, which appeared to me to be the most suitable. The asphalt used by me was brown, of glassy fracture and mat surface; when rubbed, it gave a chocolate-brown powder, which dissolved easily in benzole. The benzole solution left behind a film of varnish, which gave no image under a matrix in ten minutes' exposure to sunlight, but only after about one hour's exposure, The asphalt dissolved with difficulty in alcohol, tolerably easily in ether, with a residue, which was completely soluble in chloroform or benzole.

I first tried to set to work in a similar way as described with colophony, but this method of incorporating the sulphur did not prove practical, as the asphalt melted with great difficulty, and incompletely, and carbonized before it formed an even melted mixture with the sulphur.

I tried now to make the asphalt more easily liquid by adding turpentine to it. The solution was raised to the boiling point of turpentine oil, 164 deg. C.; after the greatest part of the turpentine had evaporated, about 7 to 8 per cent. of sulphur was added, and heated to 250 deg. C. There was a lively evolution of sulphuretted hydrogen, the resin remaining behind in the crucible was a deep black, shining like coal, and dissolved tolerably easy in benzole. By trial printings which were made with this an increase of sensitiveness could already be observed, but not in the desired degree; the film was also sticky, which caused an adherence of the matrix, and probably was caused by the formation of sulphur compounds with the turpentine. The result of this experience was that I altered my procedure by omitting the use of the turpentine as well as the high temperature, and now proceeded, as prescribed, as follows:

About 10 grammes of flowers of sulphur were dissolved in bisulphide of carbon, and to this solution, in an alembic, 100 grammes of powdered asphalt added. After some time, the asphalt had completely dissolved. A small portion of the dark-brown liquid thus obtained was taken out with a pipette, the bisulphide of carbon allowed to evaporate, the resin remaining behind dissolved in benzole, and this solution poured on a zinc plate. The asphalt film did not show greater light-sensitiveness than the raw asphalt; the addition of sulphur then at ordinary temperatures did not produce any increase of the light-sensitiveness of asphalt. The solution of asphalt and sulphur in bisulphide of carbon was now distilled, and the residue heated for a long time on a water-bath. A test showed already an important increase of the light-sensitiveness of the asphalt in this condition over the raw asphalt. The mass was now removed from the water-bath, and slowly treated in an air-bath, over 180 deg. C., till sulphuretted hydrogen began to be evolved, at which temperature the mixture was kept for several hours. During this time sulphuretted hydrogen continuously escaped without the burnt product being formed, the appearance of which is a sign of overheating which must always be avoided.

The asphalt treated in the described way presents a black, shiny mass, which does not dissolve in alcohol, only in small quantities in ether, but completely in oil of turpentine, benzole, chloroform, and bisulphide of carbon. The varnish prepared from this by dissolving four parts of the preparation in 100 parts of coal-tar benzole gives when poured upon zinc plates a golden-yellow, thin film of asphalt of proportionately greater sensitiveness to light, and this gives with short exposure under a good printing matrix after development with oil of turpentine clear and sharp pictures.

The Development of the Asphalt Image.

The development of the pictures obtained by the aid of sulphurized asphalt cannot be effected with any turpentine, whilst pictures made with the so-called light-sensi-

§ "Centralorgan fur Waarenkunde und Technologie," Vol. I., p. 19.

tive Husnik's asphalt can only be developed with German oil of turpentine (known in the Vienna market under the name of Hungarian or Russian). I used for my experiments only the above sorts, French oil (develops slowly and clear), Austrian and American oil of turpentine, the latter in the rectified condition as spirit of turpentine. I have more nearly studied these oils for the purposes of other work, and give in the following table some data on the index of refraction and rotation of the plane of polarization (observed in Mitscherlich's apparatus with tube of 200 mm. length), since I believe that the same are characteristic for these oils :

	Index of Refraction.	Rotation in deg.	Temperature.
Neustadt turpentine, sample 1	1·46504	+ 106	29·5°C.
" " " 2	1·46306	+ 101	"
French turpentine	1·46603	— 39·5	"
American turpentine, sample 1	1·46644	+ 6	"
" " " 2	1·46693	+ 21	"
Hungarian turpentine	1·46791	+ 43	"
Russian "	1·46820	+ 39·5	"

Oil of turpentine in the unrectified state contains generally free resinous acids, formic acid, etc., in order to free it from which it is shaken up with carbonate of potash. It is better, however, to use rectified oil, which is almost free from acid. After about ten minutes' exposure to direct sunlight, the plate is allowed to cool, and flooded in a dish with spirit of turpentine. The image appears very quickly, and developes absolutely clear. When the bare metal of the plate becomes visible, the development is stopped, the plate well washed under a stream of water, and exposed to sunlight to harden the image, after which the image is gummed.

Comparison of the Sensitiveness of Sulphurized Asphalt with other Preparations of Asphalt.

In order to render a comparison possible, 4 per cent. solution of sulphurized asphalt, further 4 per cent. solution of the preparation prepared by precipitation of chloroform solution with ether and of the so-called Husnik's asphalt, were poured on small zinc plates and the films simultaneously exposed about fifteen minutes in direct sunlight under Vogel's photometer, then the image of the first-named preparation was developed with spirit of turpentine, that of Husnik's preparation with Hungarian oil of turpentine. It was seen that the sulphurized asphalt was at least 1½ times as sensitive as the two other preparations.

Further Rasearches respecting the Sulphurized Asphalt. Probable Process in the Sulphurization.

The Syrian asphalt consists, as has been already mentioned at the beginning of this treatise, of three different resins, which differ widely from one another. Beyond the differences which have beenalready described by Kayser in his above cited treatise, there are differences in the absorption spectra of the solutions of these resins; thus the Syrian raw asphalt shows three bands between the Fraunhofer lines *D* and *F*, which are peculiar to the *A* resin (soluble in alcohol); the *B* resin, soluble in ether, shows only two bands, whilst the most sensitive, richest in sulphur, *C* resin, shows no bands in the green.

I have now tried how much the Syrian asphalt, treated for about four hours by my process, contains of the two first or of the resins insoluble in ether. For this purpose I treated the sulphurized asphalt repeatedly with boiling ether, till only very little was dissolved, and evaporated the ether from the filtrate. There remained behind, after drying at 110 deg., 24 per cent. of the asphalt used as a tolerably soft, peculiar smelling, brownish-black mass. A sample of the same was dissolved in ether and examined spectroscopically. It showed two sharply-defined absorption bands between *D* and *E*, and close to that a continuous absorption from *E* to far into the ultra violet, corresponding to that of the *B* resin occurring in the natural asphalt. By treatment of this resin with sulphur in the described way at 150–180 deg. C. it took up sulphur, and the chloroform solution of the melted product gives a precipitate when mixed with three times the quantity of ether, which points to a conversion into a product richer in sulphur and more sensitive.

It seems quite possible, therefore, to convert the whole of the *A* and *B* resins into higher sulphurized products by sufficiently long continued action of sulphur upon raw Syrian asphalt under the above-mentioned circumstances, and thus to make it more light-sensitive, upon which point I intend to experiment further.

The resin insoluble in ether is seen to be a black, very brittle mass without odor, which has a high melting point, and is easily dissolved by chloroform, benzole, and oil of turpentine. Examined in the spectroscope, the same appearances are visible which Kayser found for his *C* resin, absence of absorption stripes between the Fraunhofer lines *D* and *F*, and commencement of complete absorption of light at *F*. The preparation of asphalt is very sensitive to light, and this sensitiveness can still further be increased by exposure to the sun for a short time, not too long or it becomes less soluble.

From what we have said, the *A* resin in the sulphurization appears to be first attacked by the sulphur since the third characteristic absorption band as above stated is no longer present in the asphalt thus treated.

The chemical process of the action of the sulphur on the asphalt during the heating ought to be as follows: The *A* resin is converted into the *B* resin according to the equation

$$2(C_{32}H_{46}S) + 2S = C_{64}H_{92}S_3$$

which reaction appears to take place even by heating to 100 deg. C., since the asphalt by this time already becomes more sensitive to light. The *B* resin is converted by further treatment and higher temperature with evolution of sulphuretted hydrogen into the *C* resin according to the equation.

$$C_{64}H_{92}S_3 + 5S = 2(C_{32}H_{42}S_2) + 4H_2S$$

It appears, however, also that the *C* resin still takes up sulphur and becomes more sensitive to light, since the product, when the process is successfully carried out, is more sensitive than the *C* resin, prepared according to Keyser, as the comparative trials proved.

Experiments Referring to the Cause of the Sensitiveness to Light of the Sulphurized Asphalt.

The question of the true cause of the asphalt becoming insoluble in light is at present an open one. Chevreul and Niepce, on the basis of their experiments, declared this phenomenon to be an oxidation process, for which the presence of oxygen as an element is necessary*;

* "Compt. Rendus," Vol. XXXIX , p. 391 ; Vol. XLI., 549.

also L. Schrank found that under a thick adherent film of collodion the action of light did not take place,† whilst R. Keyser assumes that no oxidation takes place, but only a molecular displacement of the constituents of the asphalt occurred.

I repeated these experiments, therefore, and found that my sulphurized asphalt as well also as raw Syrian asphalt exposed neither in a vacuum nor in an atmosphere of hydrogen, became insoluble, whilst in the same time of exposure, with access of atmospheric air, an image of asphalt insoluble in turpentine was formed. From this it is clear that the light-sensitiveness of asphalt arises from a photo-chemical oxidation process, in which, at all events, only extremely small quantities of oxygen comes into consideration, since small films of air enclosed between the film of asphalt and glass matrix is sufficient to produce insolubility.

The Influence of Some Additions to the Asphalt Varnish on the Sensitiveness of the Film.

As the asphalt dissolved in benzol becomes more sensitive by exposure to the sun with access of oxygen, as already mentioned I tried to attain the same effect by the introduction of ozonized air; with this, indeed, the sensitiveness was increased, but the ozone made a part of the asphalt insoluble in oil of turpentine, for which reason such pictures did not develop well.

Addition of iodine acts similarly; on the other hand, an addition of quinine, from which I expected a transfer of the oxidation, proved without any effect.

Guaiacum resin, in itself a light-sensitive resin added to the sulphurized asphalt to the amount of 20 per cent., proved to be so far of use, since the development of the image was thereby rendered more easily clear.

Conclusions.

The following conclutions may be deduced from the experiences of my experiments for the preparation and employment of the sulphurized asphalt.

(1) To prepare the light-sensitive preparation $\frac{7}{10}$ grms. of sulphur should be dissolved in a sufficient quantity of bisulphide of carbon, and added to 100 grs. of powdered Syrian asphalt. The solution is then freed from the bisulphide of carbon as described, and best heated for about an hour in a mortar to 100 deg. C. with constant attrition with the pestle, then in a roomy air-bath slowly heated till sulphuretted hydrogen escapes and be kept at a temperature of about 180 deg. to 200 deg. C. for 5 or 6 hours. The formation of burnt products, which proves a decomposition of the asphalt, are caused by too high a temperature, and is to be avoided. The asphalt thus prepared, which now only smells faintly of sulphuretted hydrogen, should be kept in a well-closed bottle in the dark.

(2) For working in diffused daylight, and especially if high sensitiveness is desired, it is advisable to free this asphalt from any existent *B* resin and from traces of burnt products, which may be effected by powdering and treating the powder with ether and with agitation in a wide-mouthed bottle fitted with a cork. After sufficient action, 2 or 3 hours, the ether is poured off and the insoluble portion dried by spreading it out in thin layers on several thicknesses of blotting paper.

(3) For use, four parts of sulphurized asphalt, treated according to notes 1 and 2, are to be dissolved in 100 c.cm. of benzole (not benzine), the solution filtered, and finally diluted till the film which is formed by pouring it on the zinc plate appears a golden-yellow color. (An exposure of half to one hour of the solution to asphalt in an open flask to direct sunlight is advisable).

(4) To develop the asphalt pictures rectified oil of turpentine free from acid, the most suitable French and Austrian turpentine, should be used. As accelerator of development with strong over-exposure, or when using asphalt treated according to note 2, an addition of so-called Russian or Hungarian turpentine may be made, which oils when used alone would attack the image. As restrainer in developing, an addition of ligroin, benzin (petroleum benzine) or wood oil may be used.

(5) The development is best effected by merely rocking in a dish without the help of any pad of cotton or wool and soon, when the image is developed clear, it should be well washed in a stream of water and allowed to drain and dry. (In order to avoid the unpleasant action of adherring drops of water, the plate may be washed with petroleum benzine before washing with water). It is advantageous before gumming the plate to expose it, as the image adheres better.—*Photo-Correspondenz.*

† Eder, "Ausfuhr Handbuch," Vol. I, 1891, p. 163.

Correspondence.

HAND CAMERA WORK.

To the Editors of The Photographic Times.

Dear Sir: Hand cameras are now the rule and not exceptions—in the language of a friend, "the woods are full of them,"—and they have come to stay, too. I have not used a tripod for six months, nor made a time exposure of any kind during that period. I am now using a 5 x 7, and am thinking seriously of trying a still larger size for occasional shots.

Hand cameras are so common now, and their character so fully established for good work, that many who heretofore used one as a toy have a desire to become photographers in fact and not in name merely. This desire leads them to inquire how to develop and finish their own exposures. I myself have instructed, in my crude way, several amateurs how to rig up a dark-room, and to proceed in the work of producing on the plate or film the latent image. Believing that there are many such within reach of your journal, I would respectfully suggest that some one of your corps of specialists write a series of articles covering the development of rapid and medium shutter work on films, rollable and cut, as well as plates. Or you might invite correspondence from your readers who are known to be successful in their particular branch. As far as I can see and judge, hand camera work will hereafter take up a large part of an amateur's time, and tripod or time work will be the exception. Even when tripods will be used I think shutter work will also be the means of exposure. There is something very seductive about shooting, with a camera, objects in motion, and it is very instructive, too, to see the different attitudes of men and animals in walking, running, leaping, etc.

Very truly yours,

Thos. J. Bray.

Warren, O., October 5th, 1891.

(We shall be glad to hear from our readers on this subject.—Editor of The Photographic Times.)

"WHERE are you going, my pretty maid?"
"To have a tintype made," she said.
"May I go with you, my pretty maid?"
"You haven't the tin, kind sir," she said.

Notes and News.

A New Camera Club has been organized in Scranton, Penn., in connection with the Young Men's Christian Association there.

The Manhattan Athletic Club of New York has organized a photographic branch. Photography in such organizations can be made very useful in recording races and amusing members by stereopticon exhibitions in the winter months.

Photographer Leeds Convicted.—George W. Leeds, the photographer who was on trial in the Court of Session, for an assault in the second degree, was found guilty of assault in the third degree. He will be sentenced next week.

Photographs of Boulanger.—Several photographs of the remains of General Boulanger have been taken as they rested in the burial casket. The coffin is composed of three cases. The innermost one is of lead lined with white satin. On the lid is a large mahogany cross and a copper plate upon which is simply inscribed "General Boulanger."

The Deadly "Kodak" Girl.—The "Kodak" girl is said to be a terror at Chautauqua. She is especially numerous, and her camera is poked and pointed at everything. Lovers have a hard time in getting out of her range. It matters little whether the subject be religious or romantic, or the spot sacred or very ordinary, the "Kodak" girl will be found around, adjusting her lens to a proper focus and "taking in" the sights.

Photographed by Lightning.—When Charles Tunnison and Ed. Caldwell were killed by a stroke of lightning at the ball game at Warren, O., they were sitting beneath a tree. On the chest of Tunnison, the white man, the undertaker found photographed, apparently by the flashs upon the skin, the image of a branch of a tree and its twigs. The strange freak is the talk of the town.—*Cincinnati Commercial Gazette.*

Photographs in Flames.—The photographing establishment of Rhino & Hester, at Franklin Avenue and the Ocean Boulevard, Flatbush, was destroyed by fire Tuesday night, October 8th. James Hester, the junior member of the firm, left the place at sunset, and yesterday morning he found the place in ashes. The fire was the work of an incendiary, evidently, as it was between two and four A.M., when the town was wrapped in slumber, that it started. Hester reported the fire to Captain Keyser, and asked that official's aid to assist him in finding the perpetrator of the deed. The loss is estimated at $500.

Our picture next week will be a portrait study of a little girl, by W. H. Shuey, President of the Douglass & Shuey Co., photographic merchants of Chicago.

Mr. J. Wells Champney, the artistic amateur photographer, promises a picture for an early issue of this magazine. It will be a country scene near his summer home in Deerfield, Mass., and will be an instructive picture for photographers who are making a specialty of artistic landscape work.

Capt. William Imlah, of the Canadian Artillery, an enthusiastic amateur photographer, was in New York the past week, and called at the editorial rooms of THE PHOTOGRAPHIC TIMES.

Miss Catherine Weed Barnes delivered a lecture on artistic photography before the Yonkers Camera Club, Thursday, October 8th. She will speak before the Chicago Camera Club, October 19th, and later, on her return trip, in Syracuse.

S. J. Dixon, whose death by drowning we reported in our preceding issue, lost his life while swimming in Moskoga Lake. The *Toronto World* states that after disporting himself near the shore, he started to swim to a point of land about three-quarters of a mile away. Two farmers who were working on a farm and who has been watching his proceedings thought it would be wise to send a boy in a boat after him, and started the boy to follow him. The boy states that just as he was almost within reach of Dixon, the swimmer suddenly showed signs of distress. His head canted forward, burying his face in the water. The boy became paralyzed, and although he had gone with the intention of being of use to the swimmer in case of need, when there was need he became powerless. Dixon drowned almost under the youth's hand. Fate had evidently fixed the spot and the hour of his end. The funeral occurred at Mt. Pleasant Cemetery, Toronto, Tuesday afternoon, October 6th, and was very largely attended.

Photographic Societies.

PHOTOGRAPHIC SOCIETY OF KANSAS CITY.

A LIMITED association of amateurs has been organized in Kansas City, Mo., under the name of the "Photographic Society of Kansas City." The membership has been limited to twenty-five, and although a permanent organization was only effected September 23d, nearly the whole of the required number of applications have been received. The idea of the club was conceived by a half-dozen leading amateurs, who have never heretofore been identified with any of the unsuccessful attempts at organizing Camera Clubs in Kansas City, and the plan of procedure in this new venture was so original as to guarantee its success. Associating with them a few kindred spirits an organization with thirteen charter members was effected, and the following officers elected: J. P. Raymond, President; W. T. Stark, Vice-President; C. H. Clarke, Secretary and Treasurer. The above named officers also constitute an executive committee for the transaction of all business in vacation.

The society has gone to work in a business-like way. Rooms have been secured and a studio fitted up with skylights, spacious dark-rooms, and all accessories and apparatus necessary for practical and experimental work. The apparatus consists of several portrait cameras ranging in size from 6½ x 8½ to 14 x 17. A number of choice lenses, an improved enlarging lantern and stereopticon combined, and in fact, as above stated, all of the apparatus necessary for successful work.

The studio will be open at all times, and each member being provided with a key, can come and go at will, and have free use of same for any work desired. Only active working amateurs who do their own work exclusively are eligible to membership.

As above stated, a number of applications have been received since the organization. The membership fee has been fixed at $10 and monthly dues at $2. The regular meetings will be held on the evening of the fourth Wednesday in each month, at which time papers, addresses, etc., upon the science of photography will be furnished by various members.

The Editorial Table.

Walton's Complete Angler, with an Introduction by James Russell Lowell. In two volumes. Boston: Little, Brown & Co.

Most amateur photographers are also followers of the "Contemplative Man's Recreation," and, indeed, are lovers of all out-of-door sports. This new and entirely satisfactory edition of the "Complete Angler" will therefore be cordially welcomed by them. The introduction by James Russell Lowell adds greatly to the interest of the book and, being one of the latest, if not the very latest, piece of literary work which Mr. Lowell did, possesses an added interest all its own. The two volumes are richly illustrated by etchings and other pictures from nature. The etchings are all by Harlow and are four in number, as follows: "Ware on the Lea," "On the Thames," "The Thames at Hampton," "The Thames at Henley." Every one is a work of art which photographers will especially appreciate, for they are all faithfully reproduced from nature. The other illustrations, consisting mainly of wood engravings, are very numerous and make the book attractive even to the casual observer. But, it is only one who carefully follows the quaint dialogues and descriptions, who will realize the full charm of this classic work. Type, printing, paper, and binding, are entirely satisfactory to the lover of fine books, and together make this edition of the "Complete Angler" one which will undoubtedly be the standard for a long time to come.

Abraham Lincoln. An Essay. By Carl Schurz. Boston and New York: Houghton, Mifflin & Co.

The essay which was originally contributed to the *Atlantic Monthly* by the Hon. Carl Schurz, as a review of "Abraham Lincoln, a History," by John J. Nicolay and John Hay, met with so wide an appreciation that, in response to many suggestions and requests, it has been revised and slightly modified, and is now published in book form. The neat little volume is embellished by a portrait of Lincoln, (which forms a frontispiece), from a photograph taken before his election to the Presidency (probably in 1860), and is regarded by competent judges as one of the best and most characteristic likenesses of him extant. It is certainly very satisfactory. "There are many pictures of Lincoln; but there is no portrait of him," as John G. Nicolay himself says. This likeness has been reproduced by the photo-gravure process from the original photograph in the possession of W. L. Garrison, of Boston. Those who read the original essay when it appeared in the *Atlantic* know what a masterly piece of work it is. It is, altogether, the most satisfactory tribute to Lincoln which has yet been published. The price is $1.

Literary Note.—October *Book News* (Philadelphia) has for frontispiece a portrait of Sara Jeannette Duncan, author of "An American Girl in London" and "A Social Departure." The biographical sketch tells us that, as Mrs. C. E. Cotes, she now makes her home in Calcutta, India, where her husband has a government appointment. No hint is given of her future literary work, but among the things likely to happen we can at least hope that this observant young lady will touch with her pen more of her experiences of life and travel, and convert them into a book as readable as her earlier ventures. Another author's picture published here for the first time is of Mr. A. T. Q. Couch, known to readers on both sides of the ocean as "Q."

No more complete review of latest books, with news of their authors, is published. *Book News* has always pictures from the new books, supplemental to the descriptive price list, notices and reviews.

"There are many mysteries in photography, many things which are 'beyond our ken,' but this fact ought not to encourage any one to add another mystery to those already known. For some years past, the publishers of our esteemed contemporary, THE PHOTOGRAPHIC TIMES, have announced in their circulars of information that the TIMES is '*the only photographic journal in the world that publishes full-page pictures with every issue.*' When it is remembered that every photographic journal published in America contains, in each issue, one or more full-page illustrations, it will be seen that here we have a first-class mystery, which we should be glad to have explained."—*Wilson's Photographic Magazine, October* 3, 1891.

In explanation of the "mystery" which our esteemed friend, the editor of *Wilson's Photographic Magazine* cannot understand, we have only to supply the word "Weekly," which he has seemed to overlook in our advertisements. If there is any other weekly photographic magazine which publishes with every issue a full-page picture, we are ignorant of the fact, and on being informed by our esteemed semi-monthly, will at once acknowledge our error. In the meantime we feel justified in maintaining the claim that THE PHOTOGRAPHIC TIMES is "*the only weekly photographic magazine that publishes full-page pictures with every issue.*"

Apropos of the foregoing, we might add that the advertisement of our magazine continues:

"IS ILLUSTRATED EVERY WEEK
WITH A FULL-PAGE PICTURE.

"Thus including in the year *fifty-two full-page pictures*, making it *the best illustrated photographic periodical in the world.*"

And in confirmation of this claim we might reprint a few specimen comments from the large number we receive almost daily in letters from subscribers and in the public press. Take the Curtis portrait, for instance, which appeared in our September 25th issue, and here are a few of the comments concerning it:

The Echoes, of Elmira, says: "By far the best portrait of George William Curtis that has appeared in print, is to be found in THE PHOTOGRAPHIC TIMES for September 25th. It is a superior phototype by Gutekunst, of Philadelphia, and is worthy of framing."

The *Brooklyn Times*, of October 3d, says: "A handsome portrait of George William Curtis forms the frontispiece to the current issue of that excellently-conducted periodical, THE PHOTOGRAPHIC TIMES."

The *Hartford Daily Times*, of October 1st, reads as follows: "One of the most perfect phototype reproductions of a perfect photograph ever brought forth is to be found in a picture of George William Curtis, which forms the frontispiece to THE PHOTOGRAPHIC TIMES, of September 25th. Probably any intelligent reader, whether specially interested in photography or not, would be interested and pleased with the range and variety, which he would find in this publication."

The *Montclair Herald*, of October 8th says: "THE PHOTOGRAPHIC TIMES, of September 28th, contains a striking likeness of George William Curtis. The portrait is from a negative by Gutekunst, of Philadelphia, who has made special pictures of so many distinguished Americans. This one, which was never before published, is printed in phototype, an improved method that brings out all the finest effects of the photographic negative. THE PHOTOGRAPHIC TIMES has manifested a commendable spirit of enterprise of late, in the full-page pictures from original photographs which embellish every number."

The *Springfield Republican*, of October 11th, prints the following appreciative editorial: "THE PHOTOGRAPHIC TIMES in its latest number gives an excellent portrait of George William Curtis, by Kutekunst, who has made the phototype here given, as well as the original photograph. This picture better represents the majesty of Mr. Curtis' face (we can find no other word to express it) than any other we have seen, but it lacks that sweetness of expression which eminently characterizes him and perfectly blends with the heroic cast of his features. Here a certain sternness takes its place, but humor is not lacking in the lines about the eyes and mouth. It is the possession of this quality of humor which saves Mr. Curtis from the shortcomings of reformers in general. He never flats—to borrow a suggestion from music. In the text there is quoted a characterization of Mr. Curtis from the *Christian Union*, which is just and felicitous." (Then follows an extended quotation.)

"This is a very truthful description of Mr. Curtis, who is one of the few really great men of the country. But it is not right that his writings should be withheld from their place in our literature. There is no author living whose works are more desired by the reading public than are those of Mr. Curtis. At this time not one of his published volumes can be obtained, and he has never made any collection, or selection of his 'Easy Chair Essays,' though they well deserve it."

And Mr. Curtis himself writes from his summer home at Ashfield, Mass: "I am very much obliged to you for the honor of the publication of my photograph in THE PHOTOGRAPHIC TIMES, of September 25th. I am, however, persuaded that the sun has some little grudge against me, which the kindliest efforts of the photographers cannot soften."

It Didn't Show Out Well.—"I don't like these photographs of myself, mamma."

"Why not?"

"After struggling so hard to get papa to buy me the thousand-dollar diamond breast-pin, you can't tell from these photographs whether the thing cost a thousand dollars or a cent!"

Queries and Answers.

152 "PHOTOGRAPHING" writes: "We are making furniture work, and our customers want their prints mounted on *Albumen Paper, back to back*. Now what we want to know is, how can they be mounted without having to silver both the print and the backing and not disturb the albumen?"

152 *Answer.*—Nothing is easier to do if we correctly understand what you want to do. Mat the negative out, and print on a much larger piece of albumen paper than the actual picture required. When printing, the paper under the mat remains white, and forms a substitute for the mount. As these pictures when mounted back to back are generally bound in book-form, more margin must be left one end of the print, to allow for binding.

153 W. C. S. of W. Va. has sent a number of ferrotypes, showing in part, and with some of them all over the plate, clusters of packers, resembling very much crystals, or small breaks in the collodion film. They do not always occur, but occasionally only. What is the cause of them, and how can they be prevented? he asks.

153 *Answer.*—We attribute the odd appearance of your pictures, 1. To dampness of the plate before varnishing. 2. To rotten collodion. 3. To bad varnish. We have taken the varnish off of all the plates and revarnished them with a benzole varnish, after which the crystalline appearance and cracks have varnished, excepting on the very worst places. We think dampness of the collodion film to be the cause, as not all your pictures present the same features, and advise you to rub the plate with a dry cloth before coating and varnish when the plate is warm. Rotten collodion, or when made with very short or powdery gum cotton will show these cracks or puckers, when excessively dried before silvering the plate. An alcoholic varnish will under all circumsfances require the plate to be warmed. Why not take a solution of Dammer in benzole? It is clear as water, colorless, and dries very hard, although a little slower than alcohol varnish.

154 N. A. N.—Can Eau de Javelle be used for the reduction of over-intense negatives, or the clearing up of foggy plates?

154 *Answer.*—It can, but the preparation must be used in a very dilute state. If too strong there is danger of destroying the negative deposit entirely. We do not encourage the use of Eau de Javelle, but advise to resort to the reducing solution described under Nos. 70 or 74, Standard Formulas, "American Annual of Photography, 1891."

"**THE TIMES** always contains something interesting and instructive."—C. D. CHENEY, D.D.S., Hoboken, N. J.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year.....$5 00
" " six months..... 2 50
" " one month's trial..... 50
Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

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Size of advertising pages, 6⅛x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion.....$20 00
Half page, per insertion..... 10 00
Quarter page, per insertion..... 5 00
Eighth " " " 2 50
Business Notices, not displayed, per line..... 20
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

As the result of one advertisement in THE PHOTOGRAPHIC TIMES I have received over (100) one hundred letters from different parts of the country, and I must say that if I had occasion to advertise in any way I would certainly choose your paper on account of its wide circulation. A. SMEDLEY GREENE,
4,517 Main Street, Frankford.

Studio Changes.

Hartford City, Indiana. Lighty Bros. have sold out.

Grand Rapids, Michigan. D. H. Hamilton is dead.

Pittsburgh, Pa. Aufrecht & Co. have dissolved partnership, each partner continuing business separately.

Business Notices.

NOTICE.—We have just enlarged our photographers stock-rooms about three times their former capacity, and are now better prepared to fill orders on time, and in better shape, than ever before. Any order given us for stock of any description will receive the most careful and prompt attention that can be given the same.
E. J. PARTRIDGE ESTATE,
69 Morrison Street, Portland, Oregon.

FOR SALE.—Studio; $500; easy terms; just the chance for young man starting in. PHELPS,
41 High Street, Clinton, Mass.

FOR SALE.—A 4 x 5 Scovill Detective Camera with Morrison Lens, three Double Dry-Plate Holders, and Eastman-Walker Roll-Holder; cost, in September, 1886, $78.50, will sell for $35.00. Also a No. 1 Kodak purchased in October, 1888; has been used but a few times; will sell for $16.50 with fresh roll of film. Both cameras are in fine condition. Address, E. D. WHITNEY,
Brattleboro, Vt.

FOR SALE.—The handsomest Portable Art Studios ever designed for actual, profitable service by the traveling photographer. It has dark-room with shaded window, side and sky-lights, doors, windows, floor, etc., all complete and tastely painted. When set up it is ready for business. A substantial business building. Send stamp for catalogue. GRAND RAPIDS PORTABLE HOUSE CO., 104 Grandville Ave., Grand Rapids, Mich.

FOR SALE.—Twenty-three volumes of the *Philadelphia Photographer*, from 1864 to 1885; *St. Louis Journal*, from 1877 to 1891; *Anthony's Bulletin*, from 1870 to 1889.
Address, MRS. HARRIET E. NORTH,
56 Genesee Street, Utica, N. Y.

A COMPETENT STENOGRAPHER AND OPERATOR—Remington machine—desires a situation; is a good accountant, and can assist in office work, bookkeeping, etc, etc.; good references from last employers.
Address, MISS CURRY,
146 East 81st Street. New York City.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
BUCHANAN, BROMLEY & CO., Importers,
Philadelphia.

FOR SALE.—A 5 x 7 Waterbury Detective Camera that has been used only a few days; has both horizontal and upright finder, and is in perfect order; will sell cheap. Address,
J. H. DOWNEY, 361 Broadway, N. Y.

EXCHANGE.—GEORGE G. C., of 105 Pikes Peak Avenue, Colorado Springs, Col., wishes to exchange a $22 Washburn guitar for a Scovill hand camera.

Silver Paper
FRESH DAILY,
Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

EXCHANGE.—WATERBURY wants to exchange his No. 1 Kodak for a 4 x 5 Waterbury Detective Camera. Address, ARCHITECT, care of PHOTOGRAPHIC TIMES Office.

PARA-AMIDOPHENOL.

WE have received a small quantity of this new and promising developing agent, and offer samples of it at the rate of 25 cents per 1 gram.
THE SCOVILL & ADAMS CO.

FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

WANTED TO RENT, or run gallery on shares, with privilege of buying; must do first-class work; or would accept position as A No. 1 operator and retoucher.
W. H. PANNEBECKER,
Boyerstown, Berks Co., Penn,

☞ THE FINEST PRINTS ARE MADE ON THREE CROWN PAPER.

We desire to call the attention of our readers who may be interested, to errors in two items of our price list of Swift & Sons Portable Paragon Lenses, as catalogued on page 132 "How to Make Photographs," June issue; also in our catalogue of Photographic Lenses for 1891, page 4, as follows:

Price of No. 2 should read $21 instead of $30.

Price of No. 8 should read $57.25 instead of $52.25.

The reputation of these celebrated lenses is fully sustained in this country, and we are being favored with glowing testimonials from all who have tested them.

THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BERTHIOT'S LENSES, all grades.
BACKGROUNDS, a large stock.
GEORGE MURPHY, 2 Bond St., New York.

FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address
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171 Main St., Stockton, Cal.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
F. F. BRAILLARD, Jr.,
423 Broome St., New York.

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10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NOW READY, MORAN'S BARGAIN LIST No. 38, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

READY-SENSITIZED PLATINOTYPE PAPER and a New Developer for it! We have an Improved Sensitized Paper with better keeping qualities and a New Developer which produces a brighter color in the finished prints. Send 10 cents for sample print and instructions to WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

Lady retoucher, at once. 175 High Street, Holyoke, Mass.

SITUATIONS WANTED.

Lady of experience desires position in first-class studio as mounter and spotter; can assist generally; references. "Mounter," 34 Irving Place, Brooklyn.

A competent negative operator and retoucher, good poser and lighter, is open for an engagement; out-of-town preferred; excellent references given. Theo. Berlinger, 2,338 Eighth Avenue, New York City.

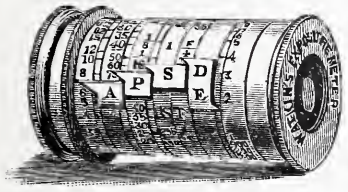
As operator, printer, or dark-room hand; can make bromide enlargements; long experience; total abstainer; reference given. Address, Hugh R. C. Naismith, 35 West Second Street, South Boston, Mass.

By first-class operator; one that understands all branches of the photographic business; can successfully work the Omega and Aristo papers. Address, J. W. A., Box 311, Kenosha, Wis.

In an Eastern city, by a first-class operator, of long experience, well up in all the requirements of modern photography; capable of producing the highest artistic effects in lighting, posing, and chemical work; exceptionally successful with children. Address, Operator, Nucleus House, San Francisco, Cal.

First-class retoucher and printer: also on bromide paper; well acquainted with sky-light and dark-room work. Address, Henry Graff, Jr., 173 East 2d Street, New York City.

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With one Exposure Ribbon and Book of Tables....$7 50
Extra Exposure Ribbons, each..... 25
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This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. A special instrument, with an extra calculating ring, F, is now supplied. This instrument is invaluable for copying and enlarging, as it takes into consideration the focus, whilst at the same time it can be used for any ordinary use without any reference to this addition.

Price, complete $9 00

By far the cheapest and only reliable Meter ever invented. Write for testimonials and particulars—free.

For Sale by

THE SCOVILL & ADAMS CO.

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,

Sole American Agents for

R. & J. BECK'S MICROSCOPES,

PHOTOGRAPHIC LENSES AND SUPPLIES.

33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*

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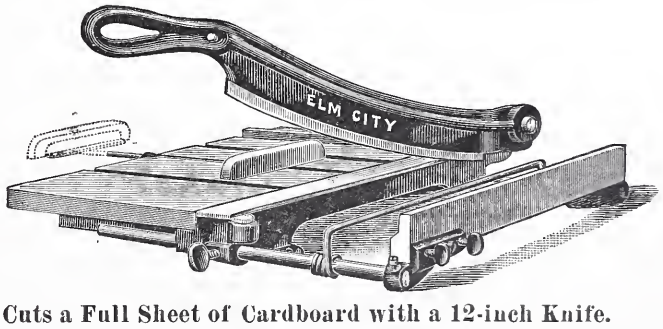
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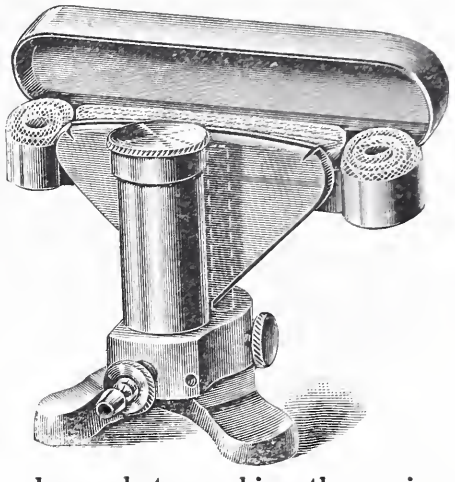
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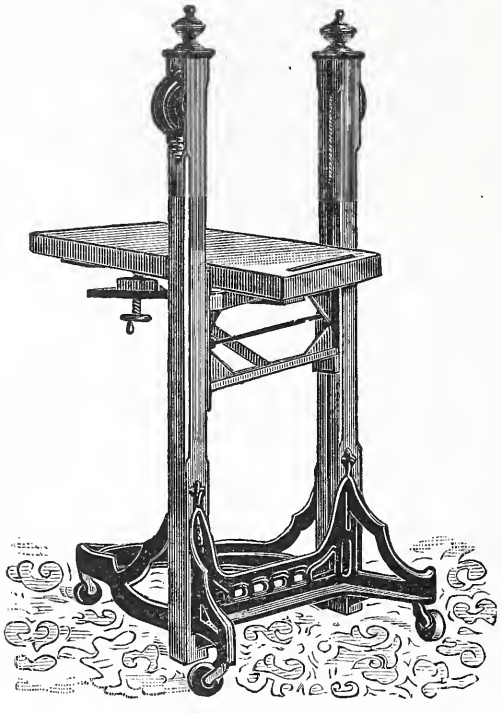
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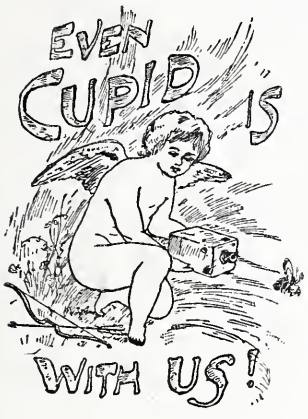
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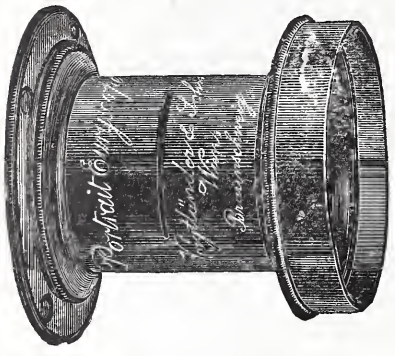
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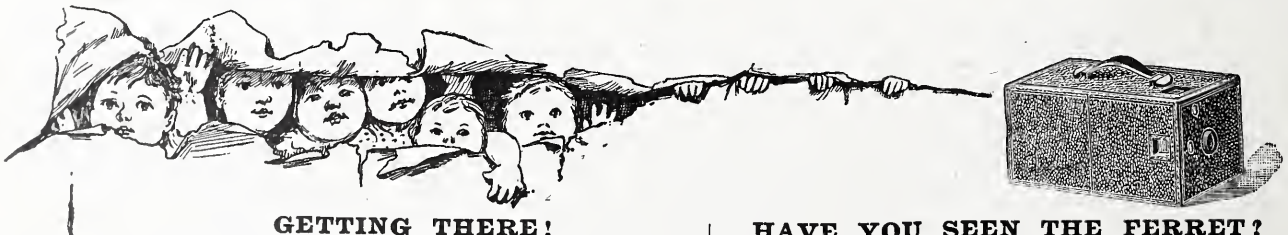
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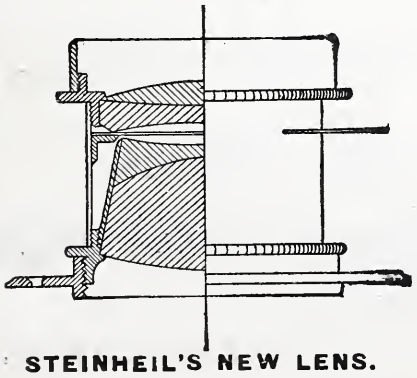
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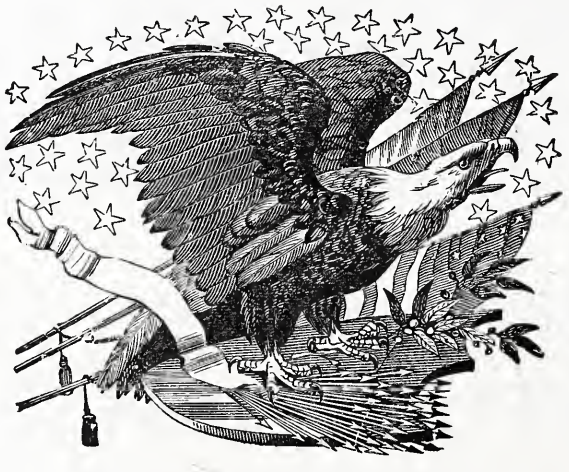
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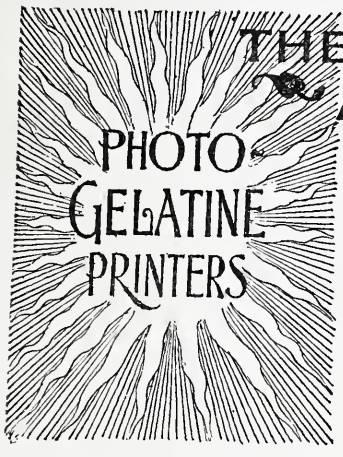
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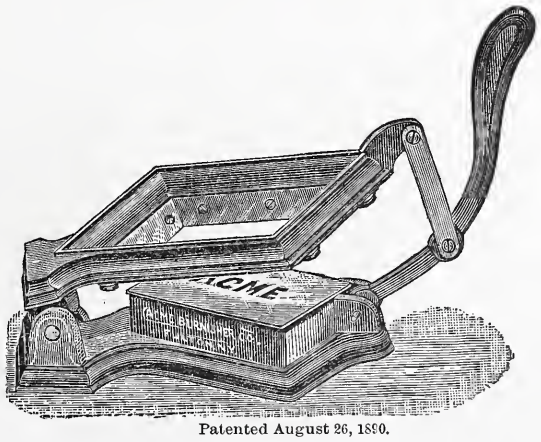
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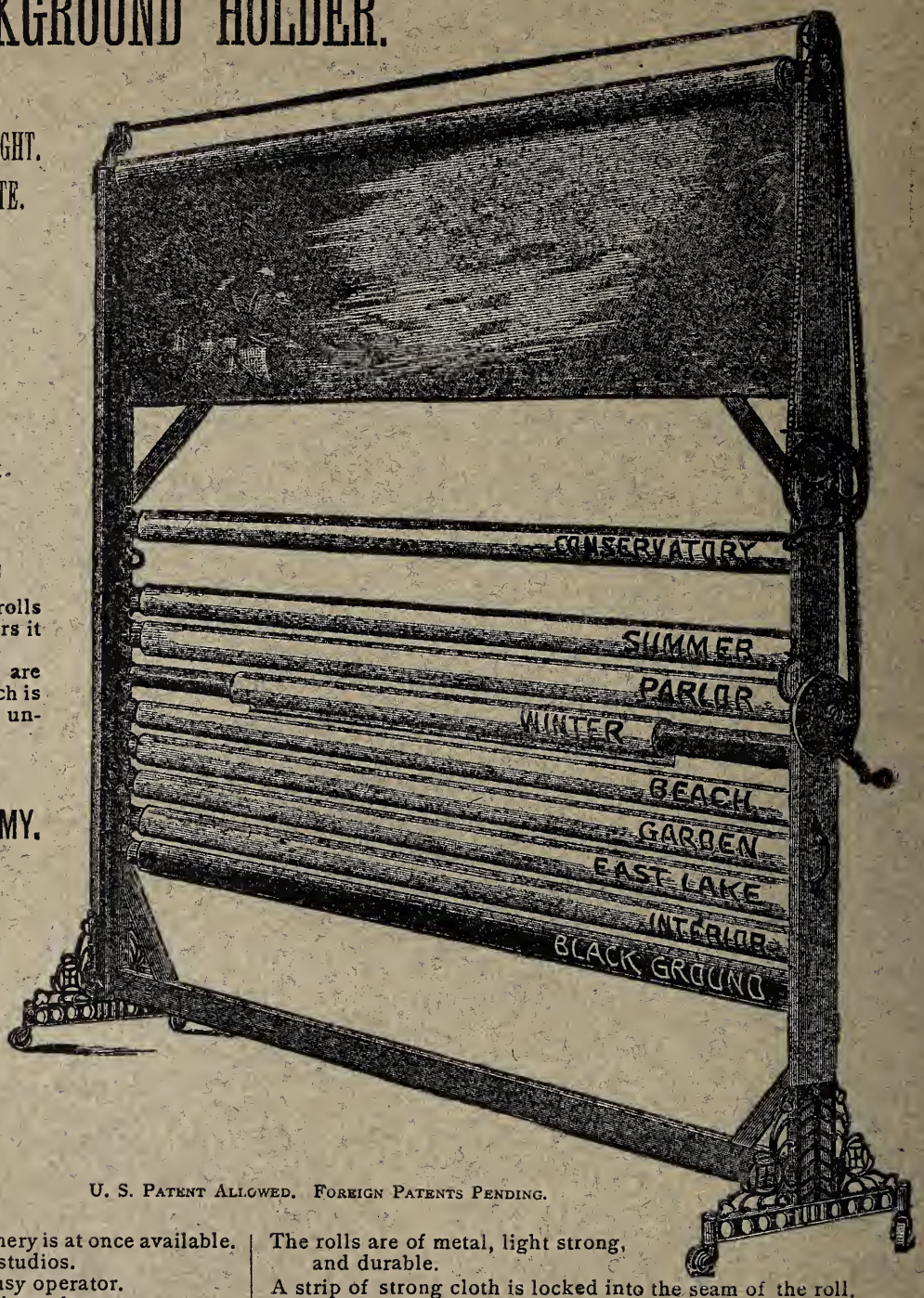
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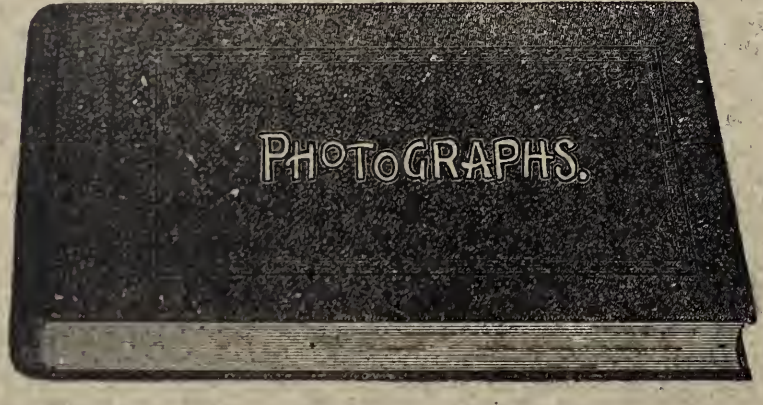
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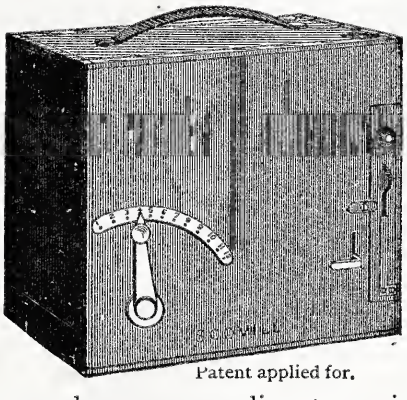
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A PORTRAIT.

THE PHOTOGRAPHIC TIMES.

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A PORTRAIT.

THE pretty child picture which embellishes our magazine this week is from a negative by Mr. W. H. Shuey, Vice-President of the Chicago Camera Club, and President of the Douglass & Shuey Company, the well-known merchants in photographic supplies of Chicago. "There is little to be said about the picture," writes Mr. Shuey, "except that it was made in the studio of the Chicago Camera Club, and developed with a combination of eiko and hydro." Mr. Shuey writes further that he made his first picture only a little more than two years ago. This portrait certainly speaks well for one who has practiced photography so short a time, indeed it might reflect credit on the oldest photographer.

LATER EXPERIMENTS WITH PARA-AMIDOPHENOL.

THIS new developing agent may now be said to be fairly introduced into amateur photographic circles. It has been critically examined by experts in photography, and has given entire satisfaction. As yet the professionals have not taken hold of it, but they are always slow to adopt a new thing.

There is apparently but one objection to para-amidophenol, which is its present high price, though we may expect it to be cheaper in the end than all others, because of the almost unlimited number of negatives which may be developed with a certain quantity of solution, and all be, from the first to the last, of uniform good quality. With ten ounces of solution we have developed eighteen $6\frac{1}{2} \times 8\frac{1}{2}$ plates, and as many 5 x 8 negatives, and it was then only the reduced quantity of the solution that induced us to prepare some more. Since its introduction the price of para-amidophenol has been reduced 50 per cent. and with the increased demand for it, the price will proportionately decrease. It will be as it was with pyrogallol. We remember well when that developer commanded a price of $16.00 per ounce, and there was so little in the market at that price, that most photographers wanting to use it had to make it themselves. And who would believe that the first hyposulphite of sodium manufactured in America was sold at the modest sum of $1.25 per pound. But "*tempora mutantur*," and so it will be all along with new chemicals.

To thoroughly test the properties which para-amidophenol has of not producing yellow stains by long continued development, we purposely under-exposed a number of Carbutt lantern-slide plates, and developed them for from ten to thirty-five minutes. The result was perfectly clear and colorless in lights, and in the blacks a tone quite equal to that produced by hydrochinon and eikonogen. With the exception of a few plates, in which under-exposure was apparent, the quality of all the slides was highly satisfactory.

Landscapes of larger size, taken on Carbutt orthochromatic plates were developed with the most delicate details in the foliage and in darker portions of the picture.

With these results and a few snap-shutter exposures made with the Waterbury detective we were quite satisfied, and proceeded to try the *bête noir* of all gelatine work, the "black and white" negative.

To make negatives of this character well, and especially when intended to be printed from on zinc for high relief etching is quite a difficult operation, not only when the negative is made upon wet collodion intensified with nitrate of lead and red prussiate, but also when it is made by other means. The capability of gelatine plates to make black and white negatives for process work is a question not yet quite satisfactorily solved, but our experiments lead us to believe that para-amidophenol will be the factor to attain the desired results.

Of main importance in the making of black and white negatives is the time of exposure. The black

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lines or characters of the print or autograph must not at all be impressed upon the sensitive plate, and even the light reflected from them should not become active. Expose for the whites simply, and success will follow by judicious development. As with all other developers, a strong solution of para-amidophenol promotes intensity, and when diluted more detail is developed. At all events, our experiments resulted quite encouragingly. The service of para-amidophenol in portrait negatives is quite equal to that of eikonogen.

There are two methods for compounding the "Para" developer, the one with caustic, and the other with carbonated alkalies.

With caustic alkalies para-amidophenal salts are formed, in which the hydrogen of the hydroxyl is substituted by the metallic radical of the alkali, forming a new body para-amidophenol sodium when the alkali is caustic soda; it is an easily soluble substance and a very energetic developer. According to Dr. M. Andresen, the developer is made by dissolving first 30 Gm. of metabisulphite of potassium in 100 C.c. of boiling water, and finally 10 Gm. of hydrochlorate of para-amidophenol. By adding to this solution gradually and by constant agitation as much concentrated caustic soda lye as is required to dissolve the separating para-amidophenol, the respective sodium salt is formed. The solution is too strong for practical purposes and may be diluted with from 5 to 50 volumes of water. Caustic soda being deleterious to the gelatine plate, an excess of it in the solution should be carefully avoided.

For our own experiment we have principally followed the method of the Messrs. Lumiére, modified as follows:

Dissolve 1½ ounce of crystallized sulphite of sodium in 10 ounces of distilled water of a temperature of 150 deg. F., and add 48 grains of hydrochlorate of para-amidophenol. Finally, ½ ounce of potassium carbonate, and filter.

Para-amidophenol is not very soluble in cold but easily soluble in hot water. In concentration as described, it will remain in solution at 65 deg.; at lower temperature it is apt to crystallize. For black and white negatives, we use the solution in its normal strength; for diapositives and lantern-slides, we dilute it with one volume of water; for half-tone negatives it is still further diluted, and as much as exigencies may demand.

With a subsequent article on this subject we expect to present our readers with a high-relief etching made from a negative developed with para-amidophenol.

EDITORIAL NOTES.

John R. Clemons, the veteran matt-surface paper manufacturer of Philadelphia, was in New York last week, and called upon the editor of this magazine. Mr. Clemons brought with him some specimens recently made on his excellent paper, which certainly spoke very highly for his method of silvering and his paper. We shall have an article on this subject in an early issue.

We print this week the first response to our invitation extended last week at the foot of Mr. Thomas J. Bray's suggestive communication on "Hand Camera Work." Mr. O. G. Mason, the veteran photographer of Bellevue Hospital, and for many years Secretary of the Photographic Section of the American Institute, describes his method of developing instantaneous exposures in this issue, and it will be read with profit by all.

Mr. Mason believes in "going slow" in this work, and also holds to pyrogallol in connection with carbonate of potassium for developing instantaneous exposures. The uniform excellence of Mr. Mason's work certainly is a strong endorsement of his methods. Next week we shall be glad to hear from others on this important subject.

DEVELOPMENT OF INSTANTANEOUS EXPOSURES.

Mr. T. J. Bray, in the October 16th issue of The Photographic Times, makes a statement that "the woods are full" of hand cameras. As I have little time for rambles among rural scenes, I judge from analogy that his statement is true. I do know that our streets, parks, steamboats and cars seem to be amply furnished with snap-boxes in the hands of all sorts and sizes of people; and if they have not "come to stay," as Mr. Bray asserts, they are certainly doing work enough to leave their mark in the photographic history of our time.

That the mark may not be a wavering line, but a straight direct pointer, leading to first-class work, is the wish and the hope of all who use that class of instrument. And although their number is almost countless, we are yet waiting for the perfect hand camera.

The working principles of the greater number of them take us back to the early days of our art, when swinging-backs, raising-fronts, and pneumatic exposures were unknown. If these improvements are essential on a stand-camera, they are equally so for hand-camera work, if first-class results are

to be obtained.* But with a good camera properly used many most miserable "pictures" are produced, in a vast majority of cases resulting from improper development.

While illustrating my method of treating a plate after exposure many months ago, a friend remarked that "life is too short to devote so much time to development." But I found that he did not count the time expended in making exposures to be spoiled by not giving a little more to after-manipulation. To all such my earnest advice is—*go slow.* After *many* years of practice, careful observation, and a familiar acquaintance with my instruments, I seldom develop a snap-shot exposure in less than ten minutes, and often more than twice that time is expended before a plate is ready for the fixing bath.

My most successful "snap-shot" work up to 11 x 14 size has been developed by alkaline pyro compounded as follows:

Water	8 ounces
Sulphite of sodium (dry powdered)	840 grains
Sulphurous acid	14 drachms
Pyrogallic acid	480 grains

If this mixture is kept cool in a closely-corked bottle of such capacity as leaves but little air space above the surface, it will not deteriorate in several months.

The accelerator or alkaline solution is made up as follows:

Water	10 ounces
Sulphite of sodium (dry)	10 drachms
Carbonate of potassium (dry)	12 drachms

To be kept in well-corked bottle.

If my subject is made up of objects reflecting a large arrangement of light, the plate is put into the proper-sized dish containing water enough to give a depth of at least 1-16 inch above the sensitive surface. Into a graduate or wide-mouth bottle is then put such quantity of developing solution as will equal 1 drachm for each 4 ounces of water used for soaking the plate as before described, and an equal quantity of the accelerator is added. Into the graduate or bottle is then poured the water, in which the exposed plate has laid, while the developing and accelerating solutions are being measured. If the plate has had sufficient exposure in the camera the image should begin to appear in one or two minutes, and then, as my Irish friend says, "go aisy loike." If the high-lights show prominently before the "half-light" or less brilliant parts of the image can be seen, add a little more of the accelerator. If the "half-light" or less brilliantly illuminated portions of the image come up with or *soon* after the high-lights, add a little more of the developer, and so proceed until the proper proportion is made up for the case in hand, *always* remembering that with a proper exposure weak pyro developer with little accelerator gives contrast sometimes (if carried too far—harshness), while too great a proportion of accelerator or alkaline solution gives softness, or if carried too far, a "flat picture." With the developing solution at a temperature between 50 and 60 deg. there is little or no danger of frilling even by slow long-continued action.

When several plates of like character and exposure are to be developed, the same solution may be used until it becomes of a deep wine or cherry color. If the action becomes too slow add a few drachms of developer and accelerator in such relative proportions as are found proper for the first plate of the lot. Never continue to use the mixture after it becomes cloudy, or is visibly changed, except in deepening of color. In 12 ounces of the mixed developer—water developer and accelerator—three or four 8 x 10 plates can be developed. During development the solution should be kept in motion by rocking the dish occasionally, otherwise a mottled or uneven action may result.

O. G. Mason.

* The "Henry Clay" hand-camera has all these adjustments.—[Editor of The Photographic Times.]

SOME NOTES ON PARA-AMIDOPHENOL.

[Presented at the October 13th Meeting of the Society Amateur Photographers of New York.]

Formula.

Para-amidophenol chloride	5 parts
Soda sulphite	20 parts
Caustic soda	15 parts
Water	1000 parts

This developer, which I call the normal developer, was used in the following experiments:

1. Exposed a Carbutt B plate ten seconds at about 8 feet from a bat-wing burner, and developed with above mixture.

The image flashed up immediately, and was thoroughly developed in a few seconds.

This proved that the exposure was either too long, or the developer too concentrated.

2. Exposed a Carbutt B plate to the same light for five seconds and developed as before. In this case, too, the image flashed almost as soon as the developer was poured upon it, and was fully developed in about a minute. The positive obtained was of fine quality, having a nice, soft, brown color.

This proves that the exposure was about right, but that the developer was much too strong for time-exposure.

3. Diluted the developer with its own volume of water, and used this diluted solution upon another plate which had been exposed, as before, for five seconds.

Even with this dilution the image appeared very quickly, and was thoroughly developed in about a minute and a half.

From these three tests it is evident that para-amidophenol hydrochloride is a very powerful developer, and it is probable that by diluting one part of the concentrated developer with two parts of water, that a sufficiently strong developer for time exposures will result.

Physical Properties.

This compound, like pyrogallol, is very readily oxidized in alkaline solutions by the oxygen of the air, and hence I fear that it would be difficult to keep it in a solution containing caustic soda. As soon as the latter is added, the mixture turns brownish red, and after developing two or three plates the solution turns dark brown, but, unlike pyro, it does not seem to stain the fingers.

With caustic soda as an alkali, para-amidophenol hydrochloride is at least five times more powerful than eikonogen, and the negatives or positives obtained have that soft, yellowish brown quality which is characteristic of pyrogallol, and which ensures good printing. As it is difficult to keep the para-amidophenol hydrochloride in one solution like eiko or hydrochinon, I would suggest that it be put up in two seperate solutions as follows:

I.

Water.	500 parts
Sulphite soda cryst.	20 parts
Para-amidophenol chloride.	5 parts

II.

Water.	500 parts
Sulphite soda cryst.	20 parts
Caustic soda.	15 parts

For use mix equal parts of 1 and 2.

For time exposures dilute the concentrated solution with one or two parts of water as required. For lack of time I have not been able to carry these experiments as far as it was originally intended, but, between now and our next meeting, I intend to extend my experiments into carbonates of sodium and potassium, as alkalies in lieu of caustic soda, and will also read a paper upon the relative reducing power of para-amidophenol chloride upon salts of silver, as compared with pyrogallol, hydrochinon and eikonogen.

James H. Stebbins, Jr.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 512.)

CHAPTER VI.

Local Reduction.

It is frequently the case that only a small part or parts of a negative require reduction. To obtain local reduction two plans are open to us. We may either do it chemically or mechanically.

1. *Chemical Methods for Local Reduction.*—In this first way the negative should be well soaked in water until the film is quite soft. The surface moisture is then taken off with blotting paper, and any of the chemical reducing agents which we have described may be applied to the parts requiring reduction by means of a finely pointed camel-hair brush. As an illustration of this method, Professor Vogel relates that a short time ago he "took a view in Torgatten, Norway, of a rocky cave looking out upon the sea. As was expected, the opening of the cave was considerably over-exposed, and was also surrounded by an ugly halo. In order to reduce this portion without affecting the rest, the negative was soaked in water till thoroughly wet, and then the portion *not* to be reduced were dried with strips of blotting-paper. Holding the plate horizontally, a solution of persulphate of iron was applied to the portion to be reduced, while the effect was watched by the aid of the light reflected from a piece of looking-glass held under the negative. The effect was so striking that after a few minutes, not only the halo disappeared, but the whole of the over-exposed part of the landscape was reduced to the required density. Nothing remained but to wash the plate in a thorough manner for one hour."

Another method is to paint with some tough varnish all round the part which has to be reduced. Allow the varnish to dry, and then apply the reducing fluid with a brush. Remove the varnish afterwards by warm methylated spirit.

2. *Mechanical Methods for Local Reduction.*—(*a*) In the *British Journal of Photography*, for 8th of September, 1882, Mr. W. E. Debenham speaks of "the removal, to a certain depth, of the gelatine film with the image it bears. This being effected by the rubbing away of part of the negative with a fine cutting powder, such as cuttle-fish bone." The powder may be applied with the tip of the finger. Cigar-ash may be used in like manner.

(*b*) A better method (and, in fact, the best method for local reduction with which we are acquainted) was described by Mr. W. Brooks, in

the *British Journal*, for 1884, p. 633; and 1885, p. 343.

A little strong alcohol (methylated spirit answers well, if of best quality and of specific gravity not higher than .825) is poured into a saucer; the negative is placed on a retouching desk (a printing frame with the back removed will do) and a sheet of white paper is placed so as to reflect the light through the negative, and so enable the reduction to be stopped when sufficient. A piece of wash-leather, or a fine linen rag, is dipped into the alcohol and then rubbed upon the part of the negative which it is desired to reduce. The surface of the gelatine film is gradually rubbed away, and the silver which it contains is seen as a black stain upon the wash-leather. Dip the latter into the spirit every minute or to, and continue rubbing until the over-dense parts have been sufficiently reduced.

It is often marvelous to see how this method will reveal the buried detail in opaque faces, hands, white lace collars, etc. (of portraits); or bring to light the tracery of church windows, reduce the halos round them, etc. It is a good plan to tie a piece of cotton-wool inside the wash-leather, so as to make a little pad, which is easy to handle. To rub down fine lines a pointed piece of wood may be covered with wash-leather. White, "snowy" patches in the foregrounds of landscapes are readily "rubbed down." The work is done most easily just after the negative has been dried. With an old negative it is well to soak it in water for an hour, then dry, and commence rubbing. Do not be afraid to rub hard; but take care that no grit gets on the rubber, or it will cause scratches.

When the reduction seems sufficient (and be careful not to overdo it) rub the film all over with a clean rag and some spirit, which will remove any smears, and take a print to see if the desired result has been obtained.

(*c*) *The Knife.* A method of reduction which requires considerable skill in its use, has of late come into great favor among professional retouchers. It consists in the use of a knife-blade ground to a very fine edge and with a rounded point, by which the surface of the gelatine film is carefully scraped away and shaved off, in fact, and marvellous alterations effected. By this means ladies' waists are contracted, their hands diminished, etc.; in fact, almost any tricks can be played with the negative. But to do this well requires long practice, combined with manual dexterity. A mezzo-tint scraper is a useful tool where fine lines have to be thinned.

Removal of Stains on Negatives.—The small brown spots or stains seen on most negatives, which have been printed from without being varnished, can generally be removed by the aid of an alcoholic solution of cyanide of potassium of the strength of three grains of the cyanide to each ounce of strong alcohol. The negative should be soaked in this, and gently rubbed with cotton-wool. Then soak in alcohol alone; and finally wash well in water, and dry.

W. Jerome Harrison.

(*To be continued.*)

THE RISE AND FALL OF THE DAGUERREOTYPE.

VII.

(As seen by a Country "Operator.")

With the notion that daguerreotyping might be made profitable for a short season in a country village where no cameras had ever before been seen, I chose such a locality for the scene of my first experiment in money-making with that instrument. By chance in the place to which I went lived a young man who also thought of trying his fortune in the same pursuit, and it was arranged that my board and lodging at his home should be the compensation for his tuition. A studio or workshop, for which a single room of moderate dimensions sufficed, being made ready, a few notices posted in conspicuous places—no newspaper being printed then—we waited the appearance of our first sitter. A lady came; and a sitting was made. After the customary inspection of the developed image some change was thought advisable, whether in time of exposure or position, it matters not; everything was progressing in due form until a satisfactory impression was secured. But at this point an unexpected interruption took place. Not another step would the thing budge. The hypo positively refused to dissolve the bromo-iodide from the plate. What could be the matter? This was something not in the bill. I had brought with me an original package of hyposulphite, to wit: a 1-pound bottle, sealed and labeled, for which I paid the sum of 63 cents; and now it wouldn't fix the picture at any price or at any strength (I was ignorant of the fact that the plate could be fixed with common salt). Something must be done at once. I proposed to have some genuine hypo before I slept. It was ten miles to Rome, the nearest city—time, 2.30 P.M., of a hot day in July. The daily mail-stage, the only public wheeled-communication with the outside world, had passed early in the day, and so I started on

foot; but when I reached the supposed end of my outward-bound trip, not an ounce of the required salt could be found or heard of as likely to be found, inside the city limits. I was then twelve miles from Clinton, and as it was certain that the needed commodity would be found at the professor's laboratory, if nowhere else, I thitherward bent my course, arriving at the village as the shades of night were falling fast. But I did not climb the long hill whereon, "beautiful for situation," the stone edifices stood, in one of which I expected to find the object of my tramp. Why should I? The room, where the skeleton hung from the stovepipe as a warning against the incautious use of poisons, would not be opened until next day. Besides, there was a choir meeting for rehearsal that evening in the "old stone church" in the village, as I well knew. I was acquainted with the singers, especially one of the girls, who, I was conceited enough to think, would be agreeably surprised to find me waiting in the vestibule. With permission I walked home with her after the rehearsal. That was long ago. She is still living, I am happy to say, and it was no longer ago than last Thanksgiving Day that I was at a family reunion where she, with her children and childrens' children, was present. Such reunions are too few in life and they end all too soon.

But this is digressing. The next day having, as expected, found what I came for, I returned by the same route and the same mode of conveyance—this time the bearer of the dearest pound of hypo ever used in photography, (if any one ever paid a higher price for a like quantity, I never heard of it). But several weeks spent in this quiet village produced no improvement in the state of my recourses. There was no money in the business in that field as far as I could see, so I moved to another small village where there were factories, in which a large number of young people of both sexes were employed. I thought that surely here would be a good demand for likenesses which were supposed to be within the reach of all. But several weeks spent in this locality proved that expenses were about equal to profits, and it appeared useless to remain longer. At this time such cities as Albany, Schenectady, Utica, Rochester, and Buffalo were supplied with daguerreotypists, and I felt no inclination to contest their prerogatives. At Utica, for example, there were Davie, Clark, Dunning, and it did not seem that more were needed. My theory about small villages was evidently incorrect. The common people, as a class, then cared but little for pictures, and photographers of the present can have but a faint idea what it was to do missionary work in country villages in those early days. Every one, almost without exception, passed through the same kind of experience in attempting to introduce photography for the first time even in villages of considerable size. This I learned in places where I afterward visited. The ground had to be first broken before it was worth cultivating.

The village of Clinton had been visited by several traveling operators. There were a college, a female seminary, academy, and a liberal institute in the place, and I determined to go back where I had learned the art and try my luck once more for the traditional third time. In this ancient seat of learning, with its numerous schools and its large proportion of cultured people, I hoped to meet with better success than I had encountered in communities chiefly composed of working people. Accordingly, I returned to Clinton about the time the schools reopened after the summer vacation and soon found plenty of work to do. Here I remained about ten months, and, at the end of this time, after paying debts and taking up my note for money borrowed to pay for my outfit, I found myself in possession of some stock, a little capital in ready money, and a much larger one in hope. I had found that I could pay my way in the world, and was content to face the future with whatever struggles it might have in store. When I left Clinton, on the 27th of June, 1848, the woman I loved went with me, and has ever since shared my lot whether for better or worse. Her former name was Cornelia Rawson, daughter of Professor Pelatiah Rawson, still well remembered by many who once enjoyed his instructions.

Leaving Clinton, we went by way of Oswego, Lake Ontario, and Lewiston to Niagara Falls, where the old Table Rock still stood or *hung* on the Canada side, and little did we dream that it was only waiting to fall, or we should not have ventured *under* it. From Buffalo we went by steamboat to Sandusky, Ohio, and to where my parents lived, near Milan. At the latter place there was then living a young man who has since made and caused to be made a great many marks in the world. His name was Thomas A. Edison, and, if my memory of dates is correct, he was then about one year old. I visited Norwalk and Monroeville, but did not think best to use my camera in that part of the country. After about two months I returned to New York State.

W. H. Sherman.

(*To be continued.*)

Correspondence.

A SOURCE OF PRIDE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The photogravure process has made the most of every detail of my negative and the result is in the highest degree satisfactory.

It is a source of no little pride to me to know that one of my plates has been published in the first photographic publication of to-day.

Very truly yours,

W. H. Crocker.

NEW YORK CITY, October 19th, 1891.

CONCERNING COPYING LINE ENGRAVING ON GELATINE PLATES.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: It seems that my little article on "Copying Line Engravings on Gelatine Plates," came quite apropos as it caused some of the most competent writers to enlarge upon it. I may have something further to say on the subject at a later date, after completing some experiments which I am now engaged in, and waiting for some opinions from practical men of the photo-mechanical shops. It is to them especially an important question. I hope that Professor Erhmann will continue his experiments with para-amidaphenol and that Mr. Carbutt will aid him with improved process plates, as suggested by Mr. Duchochois. The question must be solved sooner or later.

Yours truly,

Karl Klauser.

FARMINGTON, Conn., October 12, 1891.

PHOTOGRAPHY APPLIED TO MULTICOLOR PRINTING.

IN a paper read before the Photographic Society of Great Britain, Léon Vidal, editor of *Moniteur de la Photographie*, gave the following description of typographic and lithographic multicolor printing:

"The principle upon which the art of photocolor printing depends consists in the production of a single negative of which the positive is in harmony with the combination of colors which form the characteristic features of the original pictures. A negative must be secured which preserves with great exactness the true shades of color which are shown in the subject copied. In most instances this result can only be attained by the use of orthochromatic plates, and the operator should choose only those whose preparation will best answer his requirements. For instance, if the subject to be reproduced contains a large predominance of red, plates highly sensitive to this color should be used.

"Orthochromatic or isochromatic plates sensitive to yellow are usually more sensitive to green than plates made especially for the color last named, while they are wholly refractory to all action from red. On the other hand, plates sensitive to red are not sensitive to green.

"It would be entirely impossible, therefore, to accurately reproduce upon a plate sensitive to yellow and green an original in which this last color predominates, and the same failure would attend the use of a plate sensitive to red and yellow only. To obviate these difficulties, the use of plates sufficiently sensitive to each of these colors is advised. In such case orthochromatic plates should be treated to an emulsion or bath of methyl violet sensitized for yellow and green.

"By this treatment, while the original power of absorption of these two colors will remain unimpaired, that of red is added. As a matter of fact, by the preparation of orthochromatic plates having for their object the correction of all inaccuracies arising from the use of ordinary plates, it naturally follows that the orthoscopic preparation is suggested by the nature of the multicolor subject itself. The explanation above given suffices for illustrating the general principles of the discovery. It is clear that for the purpose of reproducing a subject which contains red, green and yellow, and the combinations of these colors a plate sensitive to yellow and green will be amply sufficient.

"In most cases the operator must judge for himself as to the correctness of the tones of his reproduction as compared with the original, as visual inspection is an excellent test of the effect produced, and if the accuracy of his work does not satisfy him it will be an easy matter to modify his formula and the orthochromatic films and to secure a more satisfactory result by preparing a second negative.

"Naturally, in processes of this nature a succession of unsatisfactory results is often to be expected before perfection is reached. It must be borne in mind, however, that it is upon the perfection of the negative that the success of the whole operation depends. It will be readily understood that when a plate has been insufficiently treated with a certain color (red, for instance) it will be too translucent over parts of the plate corresponding to that color and those portions of the ground will appear faint. It is necessary that the colors of the original shall be faithfully reproduced in order to avoid this difficulty. If the plate is made under proper conditions the process of color printing follows without trouble.

"Several photographic processes are employed for this purpose, more especially those known as the collotype and the woodburytype, while chromo-lithography is the process in most general use for the production of colored backgrounds.

"When the collotype process is used the *modus operandi* is as follows: A collotype plate, being taken from the negative, is covered with thin red or blue ink, and from this as many prints as there are distinct monochromes in the picture are made on transparent paper and duplicated on an equal number of pumice-smoothed lithographic stones. Here the chromo-litographer has to use a draught absolutely identical with the print reproduced upon his stones. In making his transfer the operator should trace upon the collotype plate two lines of reference with an ink made of a solution of tannin in water or of dilute gallic acid. This ink coagulates the gelatine, which absorbs the fatty ink where the parts are exposed to the sun.

"Lithographic monochromes are printed with lithographic ink in the usual manner, subject only to the conditions which the nature of the picture and the special treatment of the original may impose.

"This is a rule which must be invariably followed.

"In all cases where a photograph which is to be reproduced shows a light whose brightness amounts to pure

white a reflecting screen is an indispensable requisite. A practical illustration of this will be found in the reproduction of the portrait of a lady dressed in a black satin gown.

"The high lights produce in the negative deep blacks, corresponding to pure whites in the positive. This is a fault which orthoscopic photography is powerless to correct. The only means of reproducing the original with accuracy would be by having recourse to a second exposure, but the remedy would in reality be worse than the defect it is called upon to correct, inasmuch as it would introduce monotony into the whole picture. The best way to obviate the evil is by making use of a reflecting screen. The black satin, even in the part exhibiting the brightest light, does not appear to be pure white. This can be easily verified by placing a piece of white paper in juxtaposition with the luminous part of the picture and comparing the two. It will be seen that a light-grayish shade underlies the light of the satin, thus showing the true value of the reflecting screen. To this flat shade, however, a complete black overlay will have to be added, corresponding exactly to that of the picture. The same operation must be gone through with to produce similar effects with other colors. When the copied flat-tinted monochromes are finished proofs are taken, and for this purpose collotype prints are pulled. It is even preferable to first take off a light collotype on white paper and print colors thereon, as the first proof serves as a guide while the work is in progress, and its completion can be effected with a collotype printing of the desired strength and coloring. This first trial, already very satisfactory when the faultless execution of the design and of the original photograph is taken into consideration, can be improved upon by the manner in which the different tints are distributed and combined, and therefore recourse must be had to a third trial.

"In other words, the process above described is virtually chromo-lithography, in which photography is a most important element.

"Indeed, the reproductive part could only be effected by very eminent artists, and even under their hands the results obtained would be interpretations of the originals rather than exact copies, as is actually the case. This process can be applied to all multicolor subjects which are free from metallic colors; but it will not serve for multicolor reproductions of originals wherein such effects are to be found.

"Fatty inks, destitute of transparent properties, are not adapted to multicolor reproductions of metallic subjects and far from reflecting light, like the object photographed, they dull and diminish its lustre. When compositions of this class have to be treated, a transparent ink is the only kind which will be found suitable for this work, while the woodburytype with gelatinous ink is the only mechanical printing process which yields fair results.

"For working backgrounds not only metallic powders, such as gold, silver and copper bronze, should be used, but brilliant or dull metal in leaves, which, giving more solidity to the work, comes nearer to the desired effect. Their application is made on paper by means of lithography, while the paper itself must be so prepared as to be adapted to woodburytype printing. The proofs are pulled on the backgrounds with the aid of guide pins, as in chromo-lithographic printing.

"Proficiency in this style of work seems hard to attain at first; but skill is speedily acquired, and after a short experience the operator will find no trouble in securing perfect proofs."

Notes and News.

L. G. Ross, of Lebanon, N. H., has bought out the photographic gallery of A. A. Lewis, at Newport, N. H.

John E. Dumont, the American amateur photographer, who has secured so many prizes abroad for his superior work, has been awarded the first gold medal of the London Amateur Photographer.

The Discussion of Hand-Camera Work has been started by Mr. O. G. Mason, with an able article in this number of the magazine. Who will be the next to take up the interesting subject?

The Camera in our Natural Scientific Laboratories is the title of an interesting article by Professor Edwin H. Barbour, of the University of Nebraska, at Lincoln, which will appear in the next issue of this magazine.

The Daguerreotype is being revived in Chicago. One of the oldest photographers of that city is contemplating the making of daguerreotypes once more, as he has had many requests for them of late.

Para-amidophenol, the promising new developing agent, comes in for considerable attention in this number of the PHOTOGRAPHIC TIMES. President Stebbins, of the Society of Amateur Photographers of New York, presents some interesting "Notes" on the subject, and in the editorial are reported some "later experiments" with the new agent.

An excellent portrait of Bishop Brooks will adorn the pages of this magazine next week. The negative is by Gutekunst, of Philadelphia, who has made satisfactory portraits of so many eminent Americans, and the reproduction is a phototype by him. The recent consecration of the bishop makes this portrait especially appropriate at this time.

The Photographic Society of Philadelphia have been making decided improvements in their rooms at 10 South 18th Street. The system of lighting and steam-heating employed are the most approved, and the new quarters of the club are all that can be desired.

The Most Popular Photograph.—At present the most popular photograph in England is said to be that of the Duke and Duchess of Fife, with their infant daughter, the Lady Alaxandra Duff, who is held by its young mother, and by her side stands the Duke, who is proudly gazing upon the hairless head of his first born.

A Gullible Photographer loans his jewelry to a young man who is about to pose for some pictures and who says he thinks a display of gold would add to the effect. Then the young man takes the artist into his confidence and tells him he is going to send the photograph to a wealthy young lady who is in love with him. He follows this up

with the suggestion that a cane would add the finishing touches to his general get-up, and while the obliging camera manipulator is out purchasing the cane the bright young man leaves hastily and takes the jewelry with him. That photographer ought to find some business where he will be safe. Some of these fine days an enterprising thief will steal his dark-room and carry it off through the skylight with the artist himself inside.—*N. Y. Dispatch.*

The Strange Title for the frontispiece adorning a recent issue of an esteemed contemporary is: "MADE ON ——'S —— NEGATIVE FILMS."

The Photograph Anticipated.—In Fenelon's "Fables," written in 1690, may be found an interesting chapter entitled "Voyage Suppose." Of the marvels related in that story we read:

"There was no painter in all that country, but when they wished the portrait of a friend, they put water into large basins of gold and silver and made this water to face the object they wished to paint. Soon the water would congeal and become as the face of a mirror, where the image dwelt ineffaceably. This could be carried wherever one pleased, always giving as faithful a picture as a mirror."

Who will say that Fenelon did not anticipate the photograph?—*St. Louis Republic.*

A California Plank.—A photograph recently reproduced in the *Northwestern Lumberman* showed a redwood plank of extraordinary size, measuring 16 feet 5 inches in width by 12 feet 9 inches in length, and 5 inches in thickness. It was cut from a tree 35 feet in diameter and 300 feet tall, being hewn out of the stump after the tree was cut at about 28 feet above the ground. A locomotive attached to a block and tackle was needed to lower it, and two men were occupied for a month in roughly preparing it for shipment, The price of this labor, added to the cost of transportation amounted to some $3,000, after the plank had been taken by water to San Francisco. The tree stood in Humboldt County, Cal., and the plank, after being exhibited in the various cities, will probably be a feature of the World's Fair in Chicago. A specially constructed car is required for its transportation.

Westchester Camerists.—The newest fad among the young men of Westchester County is amateur photography. Large numbers of them have tired of their bicycles and sold them, applying the proceeds to the purchase of photographing outfits with dark-room attachments. Several clubs have been formed, and club-rooms have been furnished with dark-rooms and the other paraphernalia requisite for developing plates, printing, and mounting of prints.

Every clear day these amateurs may be encountered on any of the country roadways with their cameras of various descriptions, touring about in quest of pretty or romantic bits of scenery to preserve in their albums.

The sport is not confined to boys nor young men either. The young women are also as great enthusiasts as their brothers, and some have developed great skill in the production of pretty pictures. They seem to like the blue prints best, perhaps because the printing of them is much simpler than pringing on albumen or aristotype paper.—*New York Times.*

Heard Over the Photograph Counter in Sarony's salesroom. *Dramatis personæ.* A number of sweet young girls with Gretchen braids and the earlier symptoms of emotional insanity.

"Oh-h-h, Tet, isn't Teddy Sothern's imperial reel elegant?"

"Say, Mame, who is S. Miller Kent?"

"Sidney Drew ought to bant."

"Pauline, did you ever see such a lovely picture of that cute little Burr McIntosh! Isn't he just too cunning for anything!"

"Oh, girls, do you know what I heard about him yesterday!"

"Was it something dreadful, Maggie?"

"Well, they do say'——

Long, whispered conversation, ending in a giggle. Then the two largest girls buy a picture of Otis Skinner as *De Mauprat*, and the party drifts out.—*New York Commercial Advertiser.*

Photography and Crime.—The exhibition of the Photographic Society of Great Britian, which opens to the public this morning is of great interest, both from the artistic and the scientific point of view. Dr. P. Jeserich, a German, has devoted his attention to the development of photography as a means of assisting the administration of the law. The screen which contains Dr. Jeserich's plates is one of the chief curiosities of the exhibition. He has shown by enlarging photographs taken upon sensitized plates, that it is possible to detect certain kinds of forgery in the most unimpeachable way; for example, where a figure or a word has been altered—and this is one of the commonest kind of forgery—the different inks employed appear in the plate in quite different colors. Similarly where a name has first been written in pencil and then traced over in ink, however carefully the pencil marks have been erased, some faint traces of the plumbago are sure to remain in the interstices of the paper, and these are revealed in the magnified photograph. Dr. Jeserich's photographs of hair and of pure and impure blood, before and after treatment with reducing agents, are also most curious, and several stories are told of the use that has been made of them in murder trials in Germany.—*London Times.*

Jay Gould's Photograph.—Jay Gould is a hard man to get into a photographic studio, writes Bogardus, in the *Ladies' Home Journal.* It probably is because he hasn't time. How I came to get a good portrait of him was through a friend. Mr. Gould had promised to give this friend a photograph of himself, and had, time and again, excused himself for his neglect by saying that he had none.

This friend came to me, arranged for a sitting, and the next morning appeared in my studio with Mr. Gould. The latter did not know that he was to be photographed—at any rate until within a moment or two before he reached my place of business.

He has a splendid head, a good strong face, and makes an excellent picture, but the day he came to me he was arrayed in very light and very thin summer clothing. This was at a time when photography had not advanced to such a point that it could take a person's picture if the clothing worn were of a white or of a light color.

I explained to Mr. Gould that if he wished a good

picture he should wear a black coat, and one of a little heavier material. He looked about the room in a nervous sort of way, glanced at his friend, and then in a low voice said to me, "I am afraid I haven't time to change my coat. If you wish to make a picture of me you had better do it now, and take me as I am."

A Bursting Bubble.—Lord Rayleigh, in a recent lecture before the Royal Institution in London, said that for some time it had been his ambition to photograph a soap-bubble in the act of breaking. He anticipated great difficulty because he knew the time occupied in the disappearance of a breaking bubble must be but a small fraction of a second.

Whoever has watched a brilliant soap-bubble burst knows how instantly it vanishes. Lord Rayleigh thought it might take one-twentieth of a second, but by repeated experiments he found that the time occupied in the disappearance of the iridescent film was no more than one three-hundredth of a second.

To catch and picture a vanishing film between the instant of its breaking and that of its complete extinction proved a most difficult undertaking, but it was accomplished.

Some persons may think that it would be equally difficult to photograph a lightning flash, but it must be recollected that lightning makes an intensely vivid impression, while the soft reflection of a soap-bubble is evanescent, even in the bright glare of an electric spark.

From printing the image of the flying edge of a broken bubble in the 300th of a second to disclosing the existence of a great nebulæ in the heavens by the cumulative effect of several hours of continuous exposure, the modern photographic plate is performing many wonders in behalf of science, and proving itself one of the most powerful means at man's disposal to unlock the secrets of nature.—*Philadelphia Times.*

A Photograph Wardrobe.—"What do you use that lace curtain for?" asked a visitor in a photograph gallery.

"That isn't a curtain," said the photographer, as he folded up the coarse length of cheap lace; "that's classic drapery for my lady sitters who pose as beauties. Look at this, and this."

He pointed to several pictures in the show-case, where girls who were gotten up to look like actresses or professional beauties had their photographs on exhibition.

"These girls haven't enough money to buy a piece of lace even as cheap as that. They are all employed at the very humblest and poorest paid work, but you would never guess it to look at their pictures. After Miss H—, my assistant, has draped them in that lace, they look as if they had just stepped out of a ball-room, or a picture-frame. Here is one coming now. Look at her."

She was a bright-faced, olive-skinned foreigner, dressed in a light brown alpaca dress that was hideously unbecoming. Her black hair was strained away from her face in hard braids. She disappeared with Miss H—— into a retiring room, soon to emerge another person. The tight coat-sleeves of her dress were pushed up to her elbow, and her high corsage so folded in to show a round, slim throat.

The lace was belted at the waist-line and puffed at the shoulder. The hard braids were let out and left a fluffy effect of crimped hair, transferring an ordinary girl into a very pretty one. The operator then took her in hand to pose for her picture.

"She will send that picture home to her friends in Norway or Sweden, and they will all see how improved she is," said the photograper, with a pardonable glow of pride, "and it doesn't cost them a cent extra for all that fixing up. I have an old fur-lined circular of my wife's that I use as a background for a winter picture.

"It looks as if the girl has just unfastened it and comes out splendidly, and it gives them an air of comfort and elegance combined. It's a great scheme and sells lots of pictures, but don't give it away. The girls might not like it."—*Detroit Free Press.*

Poto-collographic Colors.—What is properly designated as "hydrotyphy" has been recently explained by one of the French technical journals. It is the obtaining of monochromatic proofs by means of aqeous inks. A plate of gelatine is printed with a transferring color. Sheets of paper are then applied to the surface of the gelatine, and by light pressure a succession of proofs can be made. This kind of process is now adapted to proofs of three colors, viz., yellow, blue and red. It is not, however, capable of being worked with oily inks. "Photographic hydrotyphy has been practically employed many years," says an English writer, "in the chromograph for obtaining a certain number of copies of an original manuscript or design. If, instead of proceeding in the same manner as with the chromograph a positive is printed upon a plate of bichromatic gelatine, the part of this coat coagulated by the light will not swell and will not absorb the liquid colorant which is put upon the surface." On the other hand, the same authority claims that the parts not coagulated will absorb the color, and if a white sheet of paper is pressed against it a colored imprint of the image will be obtained. The photograph serves in this case to create the reserve. Mr. Vidal also explains a method which will lead to the possibility of an impression in many tints being made simultaneously upon photo-collographic plates.

The Czar and the Photographer.—The Czar, while at the Castle of Fredensburg, drives about in an open landau, unattended even by a groom. He generally dresses in a gray suit, wears a soft felt hat with a broad ribbon, and invariably has it cocked on one side of his head. A healthy-looking boy, dressed in a sailor's suit, sits beside the coachman, and the Czar is accompanied by a little Princess, who is usually dressed in white. The English visitors here are in the habit of greeting the Czar with cries of "Good morning," which calls forth a bow or other recognition from the occupants of the carriage. The Czar has one peculiarity he apparently makes no attempt to overcome, and that is his aversion to having a photograph taken. A Danish photographer, knowing this, and recognizing the scarcity of the likenesses made from life of the Czar, determined, during the royal visit this summer, to, in some way, secure a sitting of His Majesty. Accordingly, he took up his position on the road which leads from the castle to the railway station in order that when the Czar went out for his daily walk he would catch him and secure a picture of him. As luck would have it the Czar came along, passed entirely alone the very spot the photographer had selected, when suddenly he heard an ominous click among the

trees to his left, and, quickly turning around as if a pistol had been pointed at him, he saw not ten paces off a black camera pointed toward him.

The instrument was dazzling in the bright sun, and the Czar did not probably at once recognize it as a harmless photographer's apparatus. The Czar's face became ghastly white, and his walking stick, which shortly before he had been carelessly swinging to and fro, fell from his grasp to the ground. He trembled perceptibly and his face took on a sudden appearance of fright. But then, as if by a sudden effort of his will, he overcame his momentary fear; and as the photographer came forth from behind his box, with the humble request that the Czar favor him with a sitting, he was met by such a savage glance from the Czar that he began to tremble and the words died upon his lips. "Jamias!" exclaimed the Czar, as he picked up his stick and hurried back to the castle, where a group of children ran out to meet him. The photographer returned on the next train to Copenhagen in a very demoralized condition, frightened almost into fainting by the impression the Czar's enraged look and imperious "Jamias" had made upon him.—*Pittsburgh Dispatch.*

To Detach the Gelatine Film from the Reversed Negative.—M. Max Jaffé recommends the following for detaching the gelatine film from the plate, so as to have a reversed print for photocollography. The plate should not be collodionized, but covered with a solution of 15 parts of gum arabic in 100 parts of water; over this is placed a sheet of gelatine previously soaked in water, and the whole allowed to dry. The coating may now be removed without danger.

Retouchers Should Save Their Eyes.—I have now been retouching for two years, more or less, and for nearly a year have had considerable trouble with my eyes, at times fearing that I should have to give it up. Lately, however, a friend advised me to partly close my eyes while doing most of the work, and not strain them by looking hard all the time, but when finishing the negative to open the eyes and look closely. I did so, and find, without the aid of spectacles, that I not only do better work in that way, but that my eyes are now, after a month of it, entirely well. I wish other afflicted retouchers to have the benefit of my experience.—*Cozette, in Photographic News.*

PROGRESS IN PHOTOTYPES.

Revolution in modern engraving began with the advent of photography, asserts the *American Book Maker.* It is a story of almost marvelous rapidity in art progress. Less than forty years ago the Talbotype was patented in England. By this process half-tone negatives were made by placing bolting cloth between a positive and the sensitive plate. By reticulations on prepared gelatine plates a granulated effect was produced by Pretsch, who made numerous experiments in 1853 and 1854. For special kinds of work his process was esteemed valuable, but the difficulty of manipulating gelatine kept the Pretsch method out of favor. The Bullock processes were first made known in 1865. Thirteen years had then elapsed since Fox Talbot published the results of his experiments.

There had been in the meantime numerous progressive essays, but the practical results were few. Mainly they consisted of the process, afterward greatly improved by Meisenbach, of putting variously constructed screens between the lens and sensitive plate or interposing these screens between the copy which was to be photographed and the lens, or by placing the screens and positives face to face and copying them together. For general work the most satisfactory plates were produced by "stippling" when printing on the zinc.

By transferring from a ruled print on paper, a wet-plate negative was first obtained. This was stripped from the glass surface by heavily coating with a layer of rubber and collodion. The film was then put between the sensitized zinc and any negative, and exposed to the light. Developing and etching followed, as usual, by rolling the exposed plate up in ink. About the year 1885 plates in half-tone, exhibited by Meisenbach, were far superior to all former methods of linear reproduction. They became popular because the expense of drawing was saved and all of the lines and shadings of the copied pictures were faithfully and inexpensively transferred to the metal.

It is surmised that the direct process of Meisenbach for obtaining half-tone plates consists of putting a screen plate between the lens and the transparency, this screen being similar to an ordinary wet-plate. By coating a negative glass with a suitable ground cutting through to the glass better results are obtained. A sharper and less indistinct plate is made than it is possible to get by photography alone. When satisfactory the screen is faced to a positive and put in the kits on the front of the camera. The exposure and development will be about as usual, and, upon examination, the negative will show dots and lines which form the picture.

For illustrative uses the half-tone mechanical processes have almost eliminated wood engraving. The finer steel stipple effects and the reproduction of the most valuable steel engravings by what is known as photogravure have in recent years, so far as pictorial adornment is a constituent, reduced the cost of handsome bookmaking to a minimum. Reproductions of artists' original sketches, either from pen-drawings or sepia effects, and reduced copies of linear steel plates or etchings are now as common, if not more plentiful, as book illustrations than were wood engravings formerly. The limit of excellence obtainable at moderate prices has not yet been reached, nor is there any apparent cessation of experiments. The preparation of metallic plates for various purposes of utility or ornament seems now a chief object of interest to men of inventive genius who have made a close study of these special requirements.

There is no stronger contrast of values than that presented since the masses have become, by means of these cheap reproductions, educated to a lively appreciation of the manifold beauties of the engraver's art. The highest price which was probably ever paid for any modern etchings was realized in a London auction room during the past summer, when a "first state" of Meryon's "L'Abside of Notre Dame de Paris" was bought by Mr. Deprez, a local art expert, for $605. It is now possible in numerous instances, by means of photogravure, to obtain satisfactory copies of engravings of the best class for less than 5 per of the price of the costly originals.

For the Liberal Arts.—More than 15,000,000 feet of lumber will be used in the construction of the huge building for Manufactures and Liberal Arts at the World's Fair.

The Editorial Table.

Part Three of the American Dictionary of Printing and Book Making, comprising references to all that is known of the art from the earliest to the present time, has reached us. It covers the ground from "Chinese White" to "Display Type," is profusely illustrated, like the two preceding parts, and like them is excellently printed on good paper. This valuable work is now being issued in quarterly parts, and is presented without cost to all subscribers of the *American Book Maker*, published by Howard Lockwood & Co., 126 Duane Street, New York City.

The Portrait of Miss Ada Rehan in "The Prayer," which embelished a recent issue of this magazine has been reproduced in the *Chicago Graphic*, but without credit being given to the PHOTOGRAPHIC TIMES as the source from which the picture was taken.

The American Book Maker, for October, is as usual very interesting and instructive. It contains several articles of interest to photographers, one or two of which we reprint, and some illustrations which are also interesting to them.

The Air Brush Journal, for October, contains among other interesting matter for the air brush artist an article on "The Adjustment of the Air Brush," by H. R. Stewart, some interesting miscellaneous notes, and personals.

"Photographic Optics" will be found a text-book suitable both to the professional and the amateur.—*Reviews.*

"I think very highly of 'THE PHOTOGRAPHIC TIMES ANNUAL.' "—G. WATMOUGH WEBSTER, Chester, England.

Record of Photographic Patents.

DESIGNS.

21,096. Photographic Card. C. A. Wright.

TRADE MARKS.

20,185. Photographic Plates or Films. G. Cramer.

20,186. Photographic Plates or Films. G. Cramer.

460,570. Manufacture of Photographic Films. Benjamin J. Edwards, London, Eng.

460,621. Process of Giving a Mat Surface to Albumenized Silver Paper Photographs. James D. Wrigglesworth and Fredrick C. Binus, Wellington, New Zealand.

460,672. Register for Camera Roll-Holders. Henry C. Boyer, Philadelphia, Pa.

461,406. Roll-Holder for Cameras. Thomas H. Blair. Boston, Mass.

461,307. Camera Shutter. Thomas H. Blair, Boston, and John H. Crowell, Vineyard Haven, Mass.

461,308. Roll-Holder for Camera. Thomas H. Blair and Fred. H. Kelly, Boston, Mass.

TRIOLET. HE MIGHT HAVE—

My photograph I gave to Ben.
I loved him, though I did not show it;
But still I was quite happy then.
My photograph I gave to Ben,
He kissed it, foolish fellow, when
He might have kissed—he ought to know it.
My photograph I gave to Ben.
I loved him, though I did not show it!

Nathan M. Levy.

Queries and Answers.

155 WM. MEYERHOFF has prepared a combined fixing and toning bath for Omega paper as prescribed by the makers of the paper, but finds in time a brown precipitate settling upon the bottom of the jar containing it. With its appearance the toning force of the solution decreases materially? What is wrong? he asks.

155 *Answer.*—Impure sulphocyanate of ammonia, in consequence of which gold is precipitated metallically in the shape of the brown powder mentioned. We advise our correspondent to tone and fix Omega paper as described on page 149 of THE PHOTOGRAPHIC TIMES, Vol. XX.

156 A. P.—What is a metallic resinate?

156 *Answer.*—A combination of a metallic radical with abietic acid. Read Dr. A. Müller-Jacobs article, page 340, PHOTOGRAPHIC TIMES, Vol. XX.

157 P. B.—What is the chemical constitution of salt of gold, or *sel d'or*, and in what toning process is it applied?

157 *Answer.*—Hyposulphite of gold and soda. It is used in many combined fixing and toning processes.

158 FORREST—Will you kindly describe how pictures of lightning are made?

158 *Answer.*—When the electric storm approaches set your camera, focus taken at random for long distances at a convenient place, before the opened window, and in direction of the storm clouds. Insert plate-holder, draw slide, and when the storm is at its height remove cap. It is a mere accident when a stroke of lightning is depicted on the middle of the plate, but the exposure being made at night you may expose for several strokes upon the same plate, and then cap, insert another plate and keep on till the storm has passed or a sufficient number of exposures have been made. To develop lightning pictures is not more difficult than any others taken instantaneously. The light of the huge electric spark is powerful enough to impress a plate even when of moderate sensitiveness, and sufficiently so to produce a devel opable image. It being the object to simply photograph the electric phenomenon, landscape or surrounding objects should be of subordinate consideration.

An Old and Valued Friend.—"I herewith send you check for another year's subscription to your excellent publication, which is like an old and valued friend to me now."—R. DICKINSON JEWETT, Washington, D. C.

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AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

THOSE who are posted in regard to the construction of Burnishers know that the Acme pattern are made of better material, and are more reliable than any other style. All sizes are now kept in stock by the SCOVILL & ADAMS CO.

SOUTH BEND, October 10th, 1891.

SCOVILL & ADAMS CO.

Gentlemen:—I have tried the Donaldson Star Rapid Bromide Paper, and I like it better than any other I have ever used."

JAMES BONNEY.

Studio Changes.

Utica, N. Y. W. C. North has been succeeded by G. W. Gurley.

Denison, Iowa. A. F. Trone, et ux, has sold out.

Business Notices.

WANTED.—Second-hand portrait lens, 11 x 14, or larger; must be a good one. Address H. B. OWSLEY, 142 Astor Street, Chicago, Ill.

FOR SALE.—A great bargain. One 4x4 Gundlach new portrait lens, with Prosch Triplex Shutter; also one No. 3, Serries II, Steinheil lens; list $122. Will sell for $60. Address CLARK, care of the PHOTOGRAPHIC TIMES Office.

FOR SALE.—A 4 x 5 Scovill Detective Camera with Morrison Lens, three Double Dry-Plate Holders, and Eastman-Walker Roll-Holder; cost, in September, 1886, $78.50, will sell for $35.00. Also a No. 1 Kodak purchased in October, 1888; has been used but a few times; will sell for $16.50 with fresh roll of film. Both cameras are in fine condition. Address, E. D. WHITNEY,
Brattleboro, Vt.

WANTED.—A live salesman, well posted in the stock trade. Address M., care GEORGE MURPHY, 2 Bond Street, New York.

NOTICE.—We have just enlarged our photographers' stock-rooms about three times their former capacity, and are now better prepared to fill orders on time, and in better shape, than ever before. Any order given us for stock of any description will receive the most careful and prompt attention that can be given the same.

E. J. PARTRIDGE ESTATE,
69 Morrison Street, Portland, Oregon.

FOR SALE.—Studio; $500; easy terms; just the chance for young man starting in. PHELPS,
41 High Street, Clinton, Mass.

FOR SALE.—The handsomest Portable Art Studios ever designed for actual, profitable service by the traveling photographer. It has dark-room with shaded window, side and sky-lights, doors, windows, floor, etc., all complete and tastely painted. When set up it is ready for business. A substantial business building. Send stamp for catalogue. GRAND RAPIDS PORTABLE HOUSE CO., 104 Grandville Ave., Grand Rapids, Mich.

FOR SALE.—Twenty-three volumes of the *Philadelphia Photographer*, from 1864 to 1885; *St. Louis Journal*, from 1877 to 1891; *Anthony's Bulletin*, from 1870 to 1889.
Address, MRS. HARRIET E. NORTH,
56 Genesee Street, Utica, N. Y.

A COMPETENT STENOGRAPHER AND OPERATOR—Remington machine—desires a situation; is a good accountant, and can assist in office work, bookkeeping, etc., etc.; good references from last employers.
Address, MISS CURRY,
146 East 81st Street. New York City.

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R. H. MORAN,
396 Broome Street, New York.

TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
BUCHANAN, BROMLEY & CO., Importers,
Philadelphia.

EXCHANGE.—GEORGE G. C., of 105 Pikes Peak Avenue, Colorado Springs, Col., wishes to exchange a $22 Washburn guitar for a Scovill hand camera.

Silver Paper
FRESH DAILY,
Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

BARGAINS.—A Berthiot or Goertz Instantaneous Lens, Iris Diaphragm for 4 x 5 Detective Camera.
GEORGE MURPHY,
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FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
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DO YOU WANT A LENS? Send for Catalogue.
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THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BARGAINS IN BACKGROUNDS.
Send for Special List.
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FOR SALE.—Good paying gallery in a growing town, Stockton, Cal.; oldest gallery in the vicinity, well advertised, and has always obtained the best prices. Address
J. PITCHER SPOONER,
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address
F. F. BRAILLARD, Jr.,
423 Broome St., New York.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

We desire to call the attention of our readers who may be interested, to errors in two items of our price list of Swift & Sons Portable Paragon Lenses, as catalogued on page 132 "How to Make Photographs," June issue; also in our catalogue of Photographic Lenses for 1891, page 4, as follows:

Price of No. 2 should read $21 instead of $30.

Price of No. 8 should read $57.25 instead of $52.25.

The reputation of these celebrated lenses is fully sustained in this country, and we are being favored with glowing testimonials from all who have tested them.

THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NOW READY, MORAN'S BARGAIN LIST No. 38, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

A DOUBLE HOLDER

is now supplied with the

TOM THUMB CAMERA.

These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being 2⅝ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

THE OBRIG CAMERA CO.,
163 Broadway, N. Y.

Special agents for the Platinotype Process. Printing and Developing done with greatest care.

THE PLATINOTYPE.
(PATENTED.)

Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A good, sober, industrious man as operator and retoucher. Address, J. N. Wilson, 21 Bull St., Savannah, Ga.

SITUATIONS WANTED.

As operator or manager in a good gallery. Twenty years' experience, and competent in all branches. Address, Operator, at Dorey's gallery, Lock Haven, Pa.

A refined lady, good conversationalist, wishes position in a first-class reception-room. Is willing and able to spot, mount, and to retouch occasionally. Miss S. Bartlett, 100 E. 26th Street, City.

Operator and printer, perfect on bromide enlargements, and good landscape photographer, is open for a situation; city or country. Henry Chase, 123 Forsyth St., City.

By an experienced wet-plate operator either at operating or printing. J. H. Walton, 2737 Hutchingson St., Philadelphia, Pa.

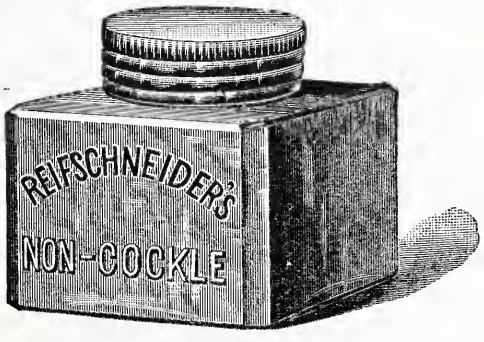
As printer and toner, or assistant operator and retoucher. John F. Goulding, 152 Dean St., Brooklyn, N. Y.

A strictly first-class printer and toner is open for an engagement. Refers to Chas. Ehrmann of the Photographic Times. Wm. Nollman, 1790 Park Ave., New York.

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"NON-COCKLE"

FOR MOUNTING PRINTS.



40 Cents per Bottle.

THE SCOVILL & ADAMS CO.,
Trade Agents

DO NOT BUY A LENS UNTIL YOU TRY A BECK.

Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

WILLIAMS, BROWN & EARLE,
Sole American Agents for
R. & J. BECK'S MICROSCOPES,
PHOTOGRAPHIC LENSES AND SUPPLIES.
33, 35 & 39 *S. Tenth, Cor. Chestnut St., PHILADELPHIA.*
☞ Send for our New Photographic Bargain Sheet.

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The FINEST and MOST COMPLETE LINE made, including everything desired.

SPECIAL DESIGNS in Backgrounds without extra charge

Send for new books of Photographs.

J. W. BRYANT,
La Porte, Ind., U. S. A.

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In this connection it is natural to think of ORTHOSCOPE LENSES. There must be some reason why they are selling so rapidly. We think we know why; if you don't, perhaps you will be interested to find out. Other people are finding out, and somehow after they have tried a lens they won't let us have it back. Strange, isn't it? The list which tells about them can be had for the asking.

THOS. H. McCOLLIN & CO.,
PHOTOGRAPHERS' SUPPLIES,
1030 Arch Street, Philadelphia.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

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ZIMMERMAN BROS.
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SEED DRY-PLATES.

SEED CELLULOID FILMS.

STEAMER BRAND ALBUMEN PAPER.

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EIKONOGEN—The Great Developer.

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GREEN'S SHUTTERS—All Styles.

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Photographic Supplies.
Established in 1850.

Get Your Sensitized Albumen Paper for
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At 59 Beekman Street, New York City.
PHOTO PRINTING AND MFG. CO.

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148 West 4th Street,
CINCINNATI, OHIO.
Ohio Agents for Blair Cameras.

ALL MAKERS' CAMERAS
BOUGHT, SOLD AND EXCHANGED
AT
J. F. LLOYD'S, 845 Sixth Ave., New York City.

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The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

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We sell everything photographic. Send list of goods wanted for special estimate.
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REFERENCES IN NEW YORK,
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GOVAN & CRAMPTON,
Successors to MINOTT M. GOVAN,
DEALERS IN PHOTOGRAPHIC SUPPLIES,
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Fully Illustrated Catalogue and Price List mailed on application.

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EIKO-CUM-HYDRO DEVELOPER.
For Sale by all Dealers.

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MANUFACTURER OF PHOTOGRAPHIC
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Photographic Supplies,
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Everything in Photographic Merchandise required by the Professional and Amateur.

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58 and 60 University Place, New York.
We have our own electric light plant and cameras. Good work and promptness assured. Moderate prices.
SEND FOR PRICE-LIST.

Chautauqua School of Photography.

The local class of 1891-'92 opened Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.00.

Cost of Ten Lessons in Portraiture, $10.00.

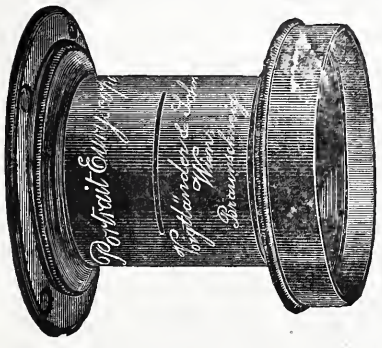
After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.00.

For particulars apply to
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Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtlander's Euryscope Lenses,

which are made in SEVEN different styles.

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MENTION PHOTO. TIMES.

HYATT'S

Patent Stamp Portrait Cameras.

Patented July 12th, 1887.



I am now prepared to furnish our ***Patent Stamp Photo. Apparatus,*** manufactured under the KUHN Patent, issued July 12th, 1887, with the right for using same, at the following low prices, and would respectfully caution the trade against purchasing or using any infringing apparatus.

Stamp size, with 25 lenses for making 25 on 5x7 plate....$50 00
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Perforators for perforating same, under our *Stamp Patent* (also issued July 12th, 1887)..... 35 00

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Photographic Stockdealers,

SOLE AGENTS FOR THE

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FULL LINES OF LEADING MAKES OF

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Orders promptly attended to and Quotations given.

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Having purchased *The Photo-American Review*, our magazine will be known hereafter as *The Photographic Herald and Photo-American Review.*

It will be published monthly at $1 per year, and edited by Mr. Laury MacHenry.

The growth of this magazine has been steady ever since its first number. It is growing surely now, but it will never be so large that it will not welcome subscriptions. Do you take it?

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111 Nassau St., New York.

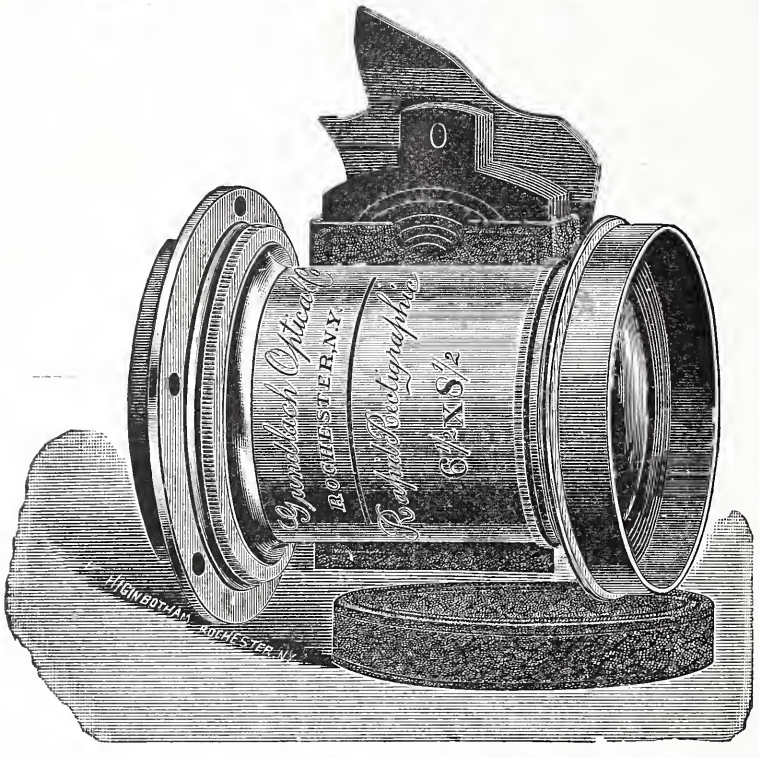
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It is a Detective Camera, and one of the best. Plain, simple, substantial and good. Leather covered, two finders, good lens, and a tiptop shutter for either time or instantaneous work. There is nothing fancy about it, hence the price is only $15, complete with one holder. It takes pictures 4 x 5. Come and see it, or send 10 cents for circular and sample picture.

LOEBER BROTHERS,
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GREAT IMPROVEMENTS IN GUNDLACH LENSES.



The *RECTIGRAPHIC* and the *PERIGRAPHIC* are now composed of

TWO APLANATIC TRIPLETS

of a novel form, producing a degree of *Optical Superiority* and *Flatness of Field* which has not been attained heretofore in Photographic Lenses.

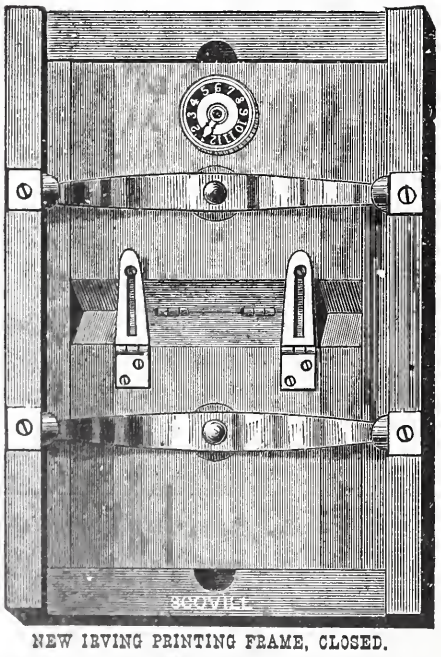
The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

Send for descriptive catalogue to the

GUNDLACH OPTICAL CO.,
Rochester, N. Y.

OR TO PHOTO. STOCK DEALERS.

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NEW IRVING PRINTING FRAME, CLOSED.
BACK VIEW.

With Adjustable Supports.

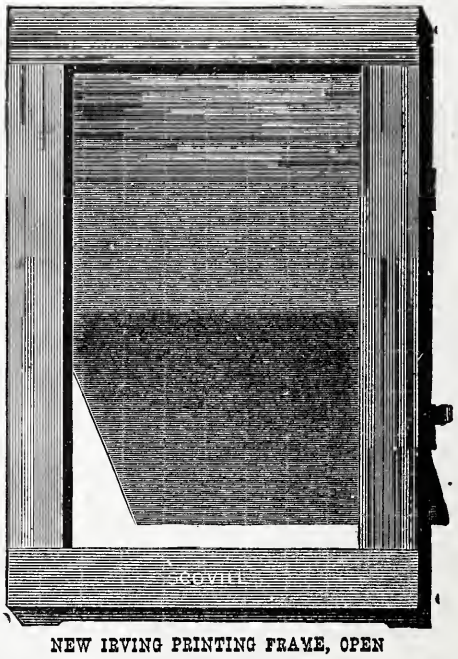
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PRICES FOR HALF OR TWO-THIRDS OPENING STYLES.

3¼ x 4¼	$0 45
4 x 5	48
4¼ x 5½	50
4¼ x 6½	55
5 x 7	60
5 x 8	65
6½ x 8½	70
8 x 10	80

When made with back to open lengthways, ten per cent. is added to the foregoing prices, for the respective sizes.



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The continuous felt pads, made especially to order for us, insure absolute protection and uniform pressure throughout. The Irving Patent Catches lock the back, so that when one flap is open there is not the slightest danger of the flaps, paper or negatives slipping.

The springs are cut by dies of specially tempered and tested metal, and are riveted to the backs with washers underneath to protect the woodwork.

The IRVING FRAMES are made of cherry guaranteed not to warp or crack. Their construction and finish is acknowledged to be superior to that of all other printing frames.

The tally does not depend upon any other part of the frame to lock it, for the pointer will remain in place no matter what is done to other parts of the frame.

IRVING FRAMES ALL HAVE ADJUSTABLE SUPPORTS.

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Will do everything a Plain Plate will do, and

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IS OUR CLAIM FOR

CARBUTT'S ORTHOCHROMATIC

PLATES AND CELLULOID FILMS.

READ THE OPINION OF AN EXPERT PROFESSIONAL:

* * * I have tested all the orthochromatic plates in the American market, and none of them, save yours, are able to come within measurable distance of perfection.

CHAS. TRUSCOTT, Philadelphia, Pa.

FOR SALE BY ALL DEALERS.

Send to factory or ask your dealer for our leaflet on "Orthochromatic Photography."

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION, PHILADELPHIA.



(Chloro-Bromide Emulsion)

This paper is unexcelled for FINE RESULTS and SIMPLICITY OF OPERATION.

ITS KEEPING QUALITIES are unsurpassed, it being in good condition for months after manufacture. It will give the fine effects of fresh silver paper, without the necessary separate operations attending toning, fixing, etc. The different solutions are combined in one bath, making it specially desirable to the amateur, there being only two operations, toning and washing, then mounting the same as albumen or other paper.

Any tone from a rich brown to a dark purple may be obtained, according to the time left in the toning bath.

The print is permanent, can be burnished, also glacéd by squeegeeing on to a ferrotype plate.

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Size.	Dozen in Package.	Gross in Package.
3¼ x 4¼	$0 20	....
4 x 5	25	....
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3⅞ x 5½ (cabinets trimmed)	30	2 00
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6½ x 8½	70	....
8 x 10	90	....
10 x 12	1 20	....
11 x 14	1 50	....
20 x 24	4 00	½ dz. 2 25

FULL AND EXPLICIT DIRECTIONS ON EACH PACKAGE.

OMEGA TONING SOLUTION, for toning and fixing Aristotype, Omega, or Albumen Prints. Gives any tone and clear prints. 10 oz. Bottles, 50 cents.

Ferro Plates for Enameling the Prints, 10x14 inches, 15 cents each.

Use OMEGA PASTE for **OMEGA PRINTS,** and you will agree that it is "the boss sticker." It is the cleanest, sweetest paste ever made.

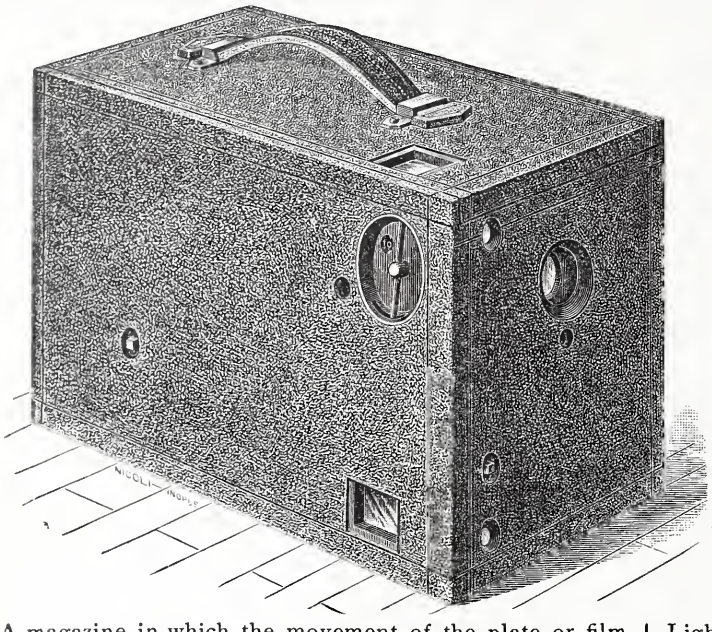
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Half pint jars	$0 25
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Quart jars	70
Pint bottles	$0 35
Quart bottles	55
Gallon bottles	2 00

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Shutter to set,
Slide to draw,
No door to be opened.

THERE ARE NO

Hinges,
Springs, or
Obtrusive fixtures.

THERE IS NOTHING

Guessed at,
Left to chance, or
Complicated.

THE ACTION IS

Directly mechanical,
Under positive control,
Absolutely EXACT.

Twelve consecutive exposures upon plates or films with but two movements.

TURN DOWN THE PLATE.
RELEASE THE SHUTTER.

A magazine in which the movement of the plate or film is directly and mechanically controlled at all times.
A locked box that is opened without a key.

A lens that is guaranteed.
A focusing device that can be *seen*, *felt* and *heard*.
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Diaphragms that are operated from without.
Light, small, simple and complete.
Plates can be changed in complete darkness, no especial light necessary.

NO WORKING PART EXTENDING BEYOND THE SURFACE OF THE BOX.

Size, 4 x 5.....Price, $45.00.

Also can be especially constructed to carry any number of additional plates up to 36.

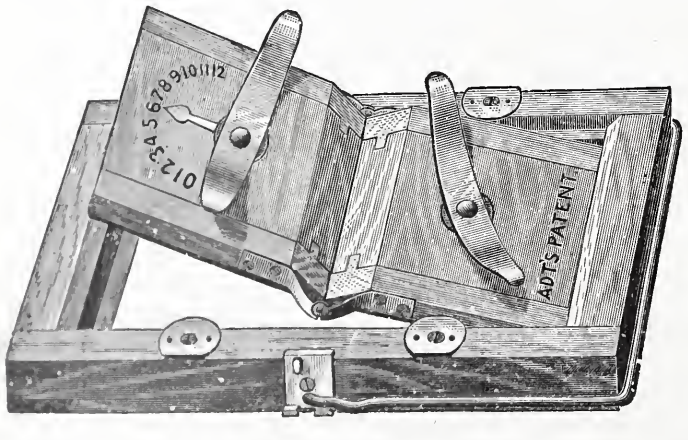
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ALFRED L. SIMPSON, Trade Agent, 66 Broadway, NEW YORK.

ADT'S PATENT PRINTING FRAME.

THE MOST PRACTICALLY CONSTRUCTED FRAME IN THE MARKET.





As will be seen by a glance at the cut, the adjacent edges of the parts of the back-board are beveled outward, and the hinges placed on the sides with their axes on a line with the surface. This permits the attachment to the face of the back-board of a **Heavy, Continuous Elastic Felt Pad.** This obviates the necessity of using a separate pad, which is so easily misplaced and lost.

These Frames are now supplied (without extra charge) with Adt's Patent Support with which the frame can be stood on either end, and at four different angles, for exposure while printing. It is out of the way of the printer when introducing the paper, or examining the print, for when the frame lies or is held with back up, the support instantly drops upon its stops for rest, and is entirely out of the way of the hand of the printer, so that he may remove or open the back-board, or replace it, as if there were no support present. Being arranged close around the sides and ends of the frame, it occupies so little space as not to interfere with the packing or storage of the frames, and when the printer places his frame for exposure the support readily finds its position for supporting the frame without any special manipulation.

PRICES.

3¼x4¼,	$0 50	4¼x6½,	$0 60	6½x8½,	$0 75
4x5,	50	5x7,	65	8x10,	85
4¼x5½,	50	5x8,	65	10x12,	1 15
11x14,	$2 15				
13x16,	2 40				
14x17,	2 80				

When made with backs to open lengthways, an additional charge of ten per cent. will be added to the above prices.

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THE AIR BRUSH



Applies any dilute liquid pigment by a jet of air. Work is far more rapid than crayon and is equally artistic. Adopted by hundreds of the best crayon and water-color portrait artists in the United States.

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Special Medal American Institute.

Send for descriptive pamphlet. Address

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would call attention of Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
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Photographic Supplies,

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Full Assortment of White's Posing and Lighting Specialties.

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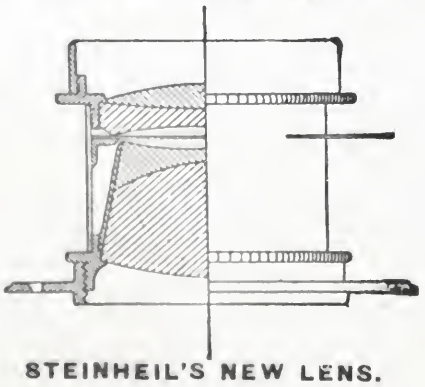
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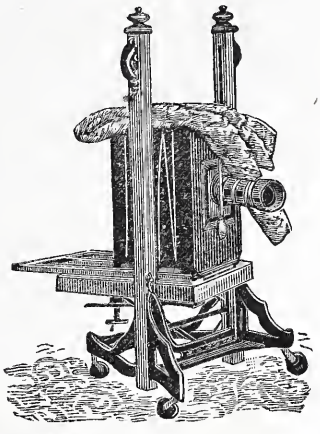
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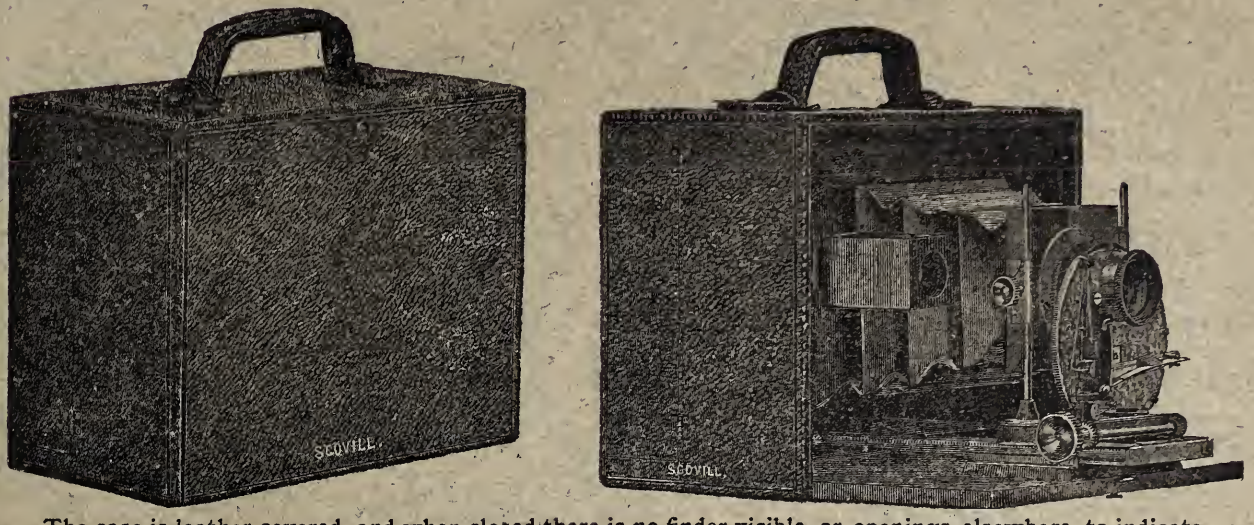
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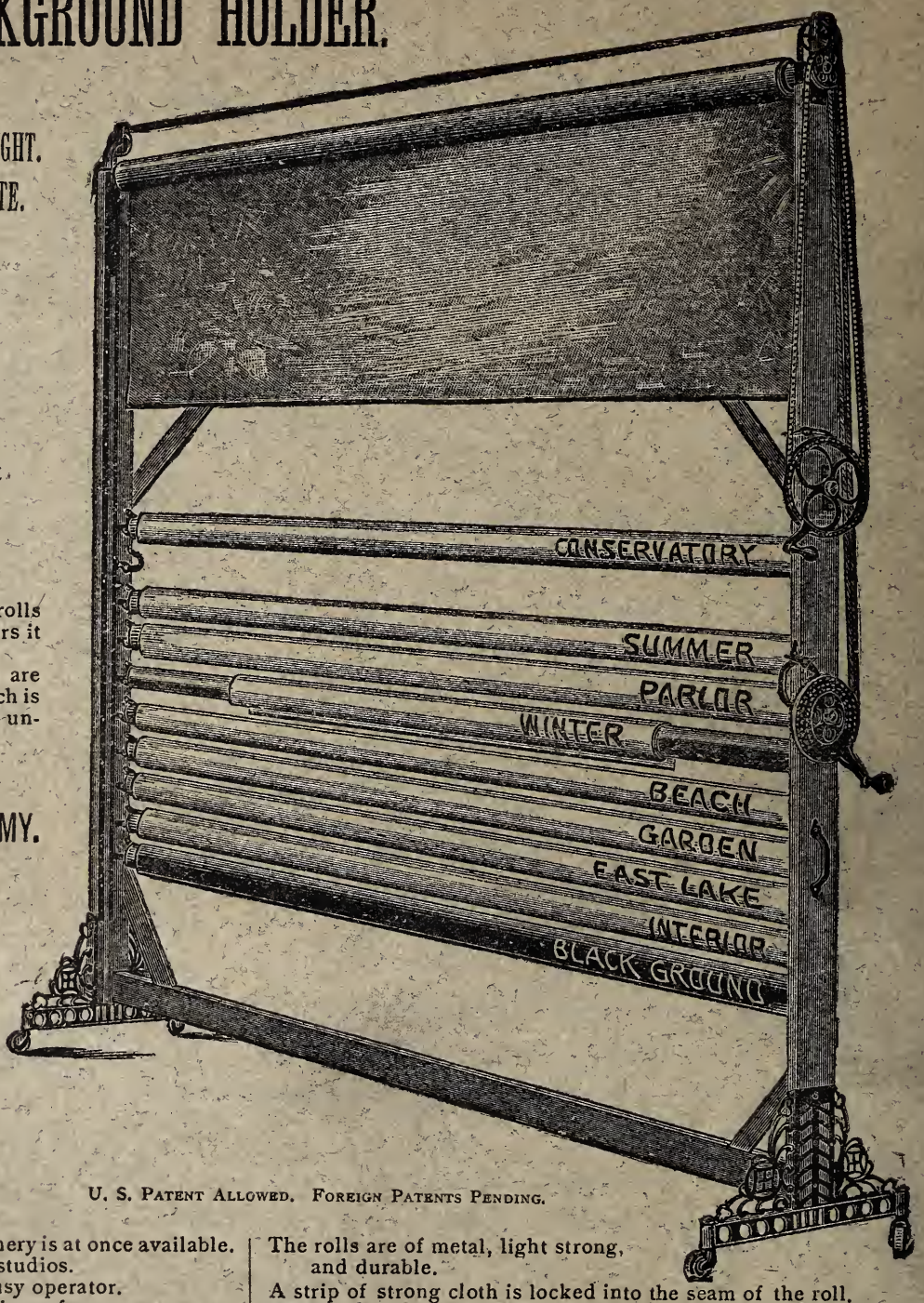
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ERNEST EDWARDS, PHOTO.

N.Y. PHOTO-GRAVURE CO.

BY THE SEA.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, OCTOBER 30, 1891. No. 528.

"BY THE SEA."

OUR striking marine picture this week is from a small hand camera negative by Mr. Ernest Edwards, President of the New York Photogravure Company. The negative was only $3\frac{1}{4}$ x $4\frac{1}{4}$ inches in size, so it was enlarged to nine times its original size in making the present photogravure. The exposure was one-fiftieth of a second with a Beck lens $\frac{f}{16}$, and the plate was developed with eikonogen developer by a method which Mr. Edwards has found very successful in connection with instantaneously and under-exposed plates.

He makes two solutions: One containing full strength of eikonogen with but a few drops of alkali; the other containing full strength of alkali. He places the negative first in the eikonogen solution and allows it to remain there until the image begins to appear, then he transfers it to the alkali solution and leaves it there until the proper amount of density and detail have been acquired. Mr. Edwards says that the film becomes so thoroughly saturated with the eikonogen when it is in the first solution that the image grows in detail and density gradually in the second solution without any danger of fogging, and he is thus enabled to get all that is possible out of a short exposure.

The scene depicted was found on Manhattan Beach, Coney Island, on the morning of the 4th of July last. A Cramer Isochromatic plate was used in the hand camera employed, and the result is a very pleasing marine picture with natural water and a good distance.

MAT SURFACE PAPER AND HOW TO WORK IT.

CONSIDERABLE interest seems to be reviving in mat surface paper, and the artistic prints which may be made upon it. For small negatives such as cabinets and those of even lesser sizes glossy surfaces do very well, and are undoubtedly desired by most photographers and their patrons; but for large photographs either portraits or landscapes, the plain mat surface paper yields the most effective results. Fully as much of the detail in the negative, if not more, may be preserved on this paper as on any of the glossy surface papers, and the mat surface, moreover, enables the artist to work with watercolor or crayon.

There are many methods by which mat surface paper may be printed. It may be sensitized, for instance, with ferro-prussiate and the popular cyanotype produced; it may be coated with bromide of silver to produce bromide prints; or it may be worked in connection with platinum sensitizers, and invariably will attractive results be obtained.

New methods for making the paper and sensitizing it have been brought forward from time to time by various experts in photography. But so far as we know that prepared by the veteran John R. Clemons, of Philadelphia, and his method of silvering is by far the best to be obtained at present. In a recent conversation with Mr. Clemons he described in detail his methods of work. It is briefly as follows:

The sensitizing solution of crystalized nitrate of silver in distilled water is of the strength of from 40 to 50 grains to the ounce, and is made slightly alkaline with ammonia. Mr. Clemons takes four ounces of this solution and precipitates it with sodium chloride, washes well the ensuing chloride of silver, and dissolves it in a strong solution of potassium cyanide. This solution is then added to one gallon of the silver bath and exposed to sunlight until required for the sensitizing of paper. Then the supernatant clear liquid is decanted, and after the requisite number of sheets have been silvered, is returned to the stock-bottle, and again placed in sunlight.

The paper is silvered by floating it upon the solution until the back of the sheet feels damp to

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the touch of the finger, after which the sheet is lifted up, drawn over a glass rod, and dried. When perfectly dry it is fumed for thirty minutes in the vapors of stronger ammonia.

In printing, Mr. Clemons recommends to print deep enough to slightly cover the high lights, leting the dark portions of the picture take care of themselves. After printing, the prints are washed and are then toned in a gold bath neutralized with either borax or bicarbonate of sodium. This bath is very much weaker than albumen paper requires. One grain of pure terchlorine of gold in 20 ounces of water is quite strong enough for it.

For positive blacks neutralize with borax ; for warmer tones, with bicarbonate of sodium. Fix in moderately strong hypo and wash in pure water

Mr. Clemons' paper is distinguished for its brilliancy of tones and perfect clearness of the whites, its easy and uniform way of working. We call the attention of all photographers to this paper, especially those who make solar enlargements, or large vignetted portraits printed direct from the negative a specialty.

THE AMERICAN INSTITUTE.

THE Sixtieth Annual Exhibition of the American Institute was opened, as announced in these columns, under the most favorable auspices, and since the opening night the public generally and photographers especially have shown much interest in the Fair.

Never before was so much interest manifested in photographic exhibits, the display by members of the Society of Amateur Photographers of New York being particularly attractive. Professional photographers have also creditable exhibitions, and the various manufacturers of and dealers in photographic apparatus and materials also are well represented.

Not only are the old quarters on the north side of the main hall devoted to photography this year, but also the upper galleries which were formerly used for this purpose, are well filled with interesting photographic exhibitions. There are also various displays of photographic goods throughout the main hall.

The amateur exhibition is undoubtedly the feature of the Fair this year. The photographs shown vary in size from those made by the little vest-camera to enormous bromide enlargements, and represent all kinds of work and all methods of printing. The management of the fair has wisely admitted amateurs on the same ground with professionals, offering the same premiums for superiority, excellence and merit.

In a later issue we shall speak in detail of some of the more noteworthy exhibitions in this department of the fair, and in subsequent issues will review the work by professionals and describe the more notable photographic apparatus on exhibition.

OBITUARY.

DR. JOSEPH PETZVAL.

This well-known Professor in the University, and a member of the Academy of Sciences of Vienna, died September 19th, in the 86th year of his age.

Through optical researches and mathematical calculations he was enabled to construct the first photographic lenses fit for portraiture. His invention afterwards became the property of the world-renowned firm of Voigtlaender & Son, and to the present time, all portrait-objectives are mainly constructed upon the plan originally devised by him. His name occupies a most important place in the history of photography, and will never be forgotten by the followers of the art-science.

DR. SIEGMUND THEODORE STEIN.

Another man eminent in photographic research has passed away. Dr. Siegmund Theodore Stein, M.D. & Ph.D., died at Frankfort a/M., the 27th of September, at the age of 57. An eminent, practicing physician, he devoted much of his investigation to the study of sciences auxiliary to those of medicine, and soon became known as an excellent photographer. With Drs. Koch and Gerlach he contributed much to the knowledge of bacteriology, in which photography was a great aid.

The results of his labor were early published in photographic journals, but with his book, in two volumes, " Das Licht, im Dieuth der Wissenschaftlichen," he has erected for himself a monument which will endure.

THE USE OF THE HAND CAMERA continues to be the subject of interesting discussion. In this number of THE PHOTOGRAPHIC TIMES Mr. Henry R. Taylor describes his improved Hand Camera, and Mr. Alfred L. Simpson, the well-known amateur of New York, describes his method of work. Maj. MacMurray, U. S. A., of Fort Wadsworth, Staten Island, contributes an article on " Snap " Pictures for art illustrations, and Mrs. M. S. Turner, a Chautauquan, gives some practical suggestions on developing films.

THE CAMERA IN OUR NATURAL SCIENCE LABORATORIES.

It has been my privilege on more than one occasion when the question was a tie in some friend's mind, "whether or not to add a camera to his laboratory," to cast the deciding vote by a few words of suggestion and encouragement.

Add it by all means to your store of valuable apparatus! and that too "right away quick!" For, if the time has not already come, it must, when even the lesser laboratories can no more be counted equipped without one or more cameras, than without the microtome, or camera lucida. If this last-named microscopic accessory, in all its modifications, is reckoned indispensable, what of that much more accurate and quicker instrument for portrayal, the camera. With the quickness of light it sketches the mountain, the mole hill, or the animalcule, with minuteness and accuracy of detail. It neither wrinkles its brow, nor squints its eye, nor loses its temper over some blunt pencil-point which refuses to follow the outline. Furthermore, its work when done, if well done, is ready for perpetuation by those beautiful processes of direct engraving, and that too, without further erasings, washings, or inking in. The drawing is begun, done, and soon published.

As a matter of duty to classes, add the camera, even if it be a cheap one, to your laboratory, and as much as possible explain the use (so far as it subserves the ends of science). For, if your students are to teach, this should be part of their preliminary training to anticipate future demands; if to accompany scientific expeditions, it will be a requirement for qualification in many instances; whatever their future scientific pursuit, a knowledge of the camera cannot but be useful.

I am by no means unaware of the fact that the ever present camera in the hands of many an aimless dude excites our prejudice and antagonism, until we would if we could, have an apology printed plainly on our carrying case. But in all fairness we must also view this same piece of scientific apparatus in the hands of men who study lunar and solar phenomena of the phenomena of life itself, when it takes rank with instruments of precision.

The laboratory should boast of a camera, and if possible, a photo-micrographic camera. However, the latter is rather too expensive for the younger colleges, and herein is additional excuse for procuring a camera because it is easily converted into an excellent improvised photo-micrographic camera. In my own case I have three cameras, one of which is at the disposal of students at all times, whatever the nature of his subject, be it fire, air, earth, or water; fish, flesh, or fowl; animal, vegetable, or mineral.

Now every one knows, who knows anything of the subject, that in every biological laboratory correct drawings are quite as imperative a requirement as correct notes. It is just as irrational to study anatomy or histology without notes and drawings as to pursue the same studies without the actual specimen in hand. Yet how few students are prepared to illustrate their notes by even simple diagramatic sketches. Hence they undertake biographical work with many a doubt and misgiving, or perhaps abondon it altogether. In such cases a little stimulous, such as mechanical means of drawing can furnish, may tide the student over.

Now suffer me to explain one or two results of placing a camera invitingly handy to classes in geology, biology, and natural history in general, and to show how the student, instead of remaining half-hearted in the matter and careless, becomes first pleased, then interested, and finally a devotee, perhaps, content only with accurate and systematic results, and the mastery of all difficulties in his natural history work. (All such work with the camera should be done outside of class hours. The specimens and camera can be taken to the student's private apartment in ordinary cases.) The diffident student is at work, we will say, on the external anatomy of the crawfish; his untrained pencil becoming so tangled up with innumerable struggling appendages, that you can't tell an eye-stalk from a swimmeret, in his confused, discouraging sketch. But just let him train the camera on this victim of the scalpel, taking him fore, aft, and midship, if need be. The camera isn't puzzled by all the joints in the thousand-legged worm itself, and the worried student can soon paste in his note-book photographs of his specimen in every aspect, on which he can make his letters and references as systematic as if it were an engraving in a book. The gross anatomy is soon finished, then comes the minute, and when the microtome has cut sections of extreme thinness, and the microscope has resolved them into highly illuminated histological panorama, and the student has outlined the meshes of the intricate network by the use of the camera lucida, or free hand, then let him photograph it also. Perhaps the micro-photograph may reveal structures which he failed to see, or if he did see, could not trace. Inasmuch as the instructor will constantly expedite matters in the illustration of his published articles by the use of the camera, let him take his students one step further by having them ink in the outlines on a plain silver print or

blue print, with a fine pen, or drawing ink, shading the same if desired by lines or by stippling. The prints thus treated are ready for photo-engraving when bleached. Your student's ambition is aroused, and he carries with him at least one lesson in the art of preparing scientific illustrations for any paper he may some day publish. But here is the great point: aside from the genuine interest excited, the student has his eyes opened for the first time perhaps to the possibilities of doing some independent thinking, some investigating and research work, and future publication of his own. It is a revelation to see how he is awakened and interested in all these new possibilities, especially if he be a classical student, whose only idea so far has been to memorize correctly the thoughts of others.

Just unroll before the students in your laboratories a few of these possibilities, and make notes on their progress and increasing interest. Just consider its manifold uses for yourself in field or laboratory, and compare the few dollars spent for a camera outfit with the rest of your gilt-edged investments.

At another time—that is by the time you have added a camera to your laboratory, and mastered it in whole or in part—I hope to describe, with illustrations, methods of attaching the camera to the microscope for photo-micrograpic work; and to describe ways and means of using the camera in the production of engravings for scientific purposes.

Edwin H. Barbour.

Hand Camera Work.

THE following articles, by well-known and skillful instantaneous photographers, are in continuation of the discussion on this interesting subject, which was started by the communication from Mr. Thomas J. Bray in the October 16th issue. Further articles on the subject are invited.

HAND CAMERA WORK.

I AGREE perfectly with Mr. Bray that good work can be obtained with a hand camera. I think that some subjects can be better reproduced on the plate or film by means of one than if a tripod were used. I have reference especially to pictures of yachts, as it is nearly impossible to work a camera and tripod with satisfactory results, on a boat which is tossing from side to side, in such a way as to catch a passing yacht in the exact position and at the very moment desired.

But with a hand camera it is different, all you have to think of is the yacht to be photographed, your thoughts can all be concentrated on that one object without fear of the camera going overboard by a lurch of the boat, as is always to be feared in the first case.

I have had a $6\frac{1}{2} \times 8\frac{1}{2}$ box-camera made, and have used it with great satisfaction for the last two years. It consists of two boxes, one fitting inside the other, and so arranged that any object at more than thirty feet is in focus. If the object happens to be at a less distance, I simply pull out the inner box until the right focus is reached. By this means the trouble of focusing is done away with before each exposure, and also the danger of the camera being moved between the act of focusing and that of making the exposure.

I have found this box so convenient for all kinds of instantaneous work that I am thinking seriously of having an 8 x 10 size made for use during my vacation next summer.

I keep my tripod camera exclusively for those subjects which require a timed exposure, finding the other so much more convenient for quick work.

Henry R. Taylor.

MY EXPERIENCE WITH THE HAND CAMERA.

THERE is nothing so entertaining or instructive as the result obtained with the hand camera, inasmuch as pictures of incidents and subjects are obtained which would be an impossibility to photograph with the tripod.

In pressing the button, do not do so at random, but look into your finder for an artistically well-balanced composition, and not merely for a chemical impression of something vague and meaningless.

Do not take pictures of very distant objects without something strong in the foreground, to the right or left, to produce a perspective. In street-scenes always make your exposure from a little height, such as the top of an omnibus (when it stops only), or from the first or second story of a building, as it will otherwise be an impossibility to obtain straight architectural lines or produce an effect of foreground.

In making groups of streetlife, try as much as possible to conceal the fact that you are a "camera fiend," and never get much nearer than 16 feet to the object, as the focus would then be very dubious. Always use the full opening of lens $\frac{f}{8}$, which should be utilized for everything excepting marine or extremely bright sea-shore pictures. An absolute essential for successful work is an apparatus which is first-class in every particular, composed of a lens of the rapid rectilinear type which will work sharp to the edge

of the plate, with a diaphragm of at least $\frac{f}{8}$; a focusing device which can be absolutely relied on as correct without the use of ground glass; a rapid mode of carrying and changing at least one dozen plates; and a shutter which is quick enough for rapid work can be arranged for time-exposures if necessary. An instrument which embodies all of the above advantages, and with which I have accomplished my best work, is a Hetherington Camera, and a plate not more rapid than Camera B, which is all that anyone could desire. If my readers will follow all or any part of my suggestions they will find marked improvement in their results.

Alfred L. Simpson.

DEVELOPING FILMS.

It may be presuming for me to write on developing for The Photographic Times, when I owe to it my favorite formula, as well as a considerable part of my theoretical knowledge of photography. But hoping that my method may be helpful to some, I will tell it. When I began to develop plates I used "pyro." Later I experimented with hydrochinon, eikonogen and iron, but have now returned to "pyro," as on the whole, more satisfactory to me.

I use a formula adapted from that of W. H. Rau, given in The Photographic Times, of July 26, 1889. According to this formula I make a solution of sulphite of soda, testing with the hydrometer 60. And a solution of sal soda testing 22. These solutions I filter and keep in separate bottles. When I have developing to do, to 1 ounce each of these solutions I allow 10 grains of pyrogallic acid. And in this way I mix as much developer as I am likely to need.

This formula does nicely in my hands for instantaneous work.

Now suppose I have an exposed spool of film. I cut it into desirable lengths and drop into a light-tight box.

I have ready a bowl of *cold* water, a tray of developer, an alum bath, and a fixing bath. I take six or eight pieces of film, first wet them in cold water, then place them face downward in the developer. I turn and watch them very much as if they prints in a toning bath, using a camel's-hair brush to dispose of any air-bubbles which may appear.

(Rubber finger-tips keep the hands free from stain.)

As soon as the desired density is obtained, I rinse the film, soak it for a minute or two in the alum bath, and place in the fixing bath. While the first batch of films is fixing I develop a second batch, using the same developer.

As soon as the developer becomes discolored, or works slowly, I substitute fresh.

In this way uniformly good results are obtained, provided the exposures have been made on fair days when the light is strong.

But if I have a plate to develop, which I know is undertimed, either from having had an extra quick exposure, or from the light having been poor, I first give it a bath of alkali alone. When this has soaked into the film, I pour it off, and flow the plate with strong, fresh normal developer, and keep the sal soda solution at hand, ready to add if desirable. This will save a plate which with ordinary handling would be very poor.

But it is easier, I think, to be careful of the light at time of exposure. The special virtue which I find in this formula is the ease with which it can be adapted to any plate. For over-timed work a few drops of bromide of ammonium quickly modifies its speed, and sometimes a little clear pyro dissolved in water is desirable. Then by beginning the development of doubtful work, with old or with diluted developer, it is easy to judge what a plate needs in time to save it.

Sometimes for weeks together I do not make a plate. But my alkali solutions are always ready, and keep in perfectly good condition. A moment to weigh out the "pyro" and fill my eight-ounce graduate and my developer is ready and I am sure of nice clear plates. And it is all so easy that I am sure an amateur who has once fairly tried developing will never again willingly deprive himself of the pleasure of finishing his own work.

M. S. Turner.

CORRECTING "SNAP" PICTURES FOR ART ILLUSTRATIONS.

All persons interested in photography observe with pleasure its marked influence on illustrative art of the day. Cameras carried by tourists or scientists into every part of the world and into every branch of mechanical or scientific work furnish the basis for sketches, or more commonly the clichés for phototypes for direct printing in technical journals and in articles of interest to the vast array of readers to whom the pictures are, in some sense, the substitutes for visits to the actual scenes themselves.

Large numbers of these are not only "snap" shots, but from "snap" positives, and with "snap" light, and the results are that the first law of rectilinear photography must be violated

obliquity of the ground glass. The camera is not held horizontal, and, as a result, the negative shows most disturbed images of buildings and structures, and art objects are misshapen beyond intelligent recognition. Steeples seen from across a square or street seem to pierce the clouds, while the building at the base sprawls out as if braceing itself against a heavy push ; or, again, if the point of view is from above, and the axis of the lens is pointed downward to get in the view, the reverse conditions take place and the verticle lines vanish below the plane of observation.

We must not quarrel with this and demand that negatives for illustration should be made solely with fixed cameras with ground grass accurately adjusted. The fact is the rarest bits and some of the most valuable illustrative pictures are of this class and can be had in no other way. The question should rather be, what can be done to rectify the non-rectilinear or non-erect effect which the original negative shows

It must be manifest that a reversal of the process in making slides, transparencies or bromide (non-contact) prints will produce exactly the correction required, and a moderately contorted negative can be made to make perfectly rectilinear and true pictures.

In making lantern-slides with copying camera, or bromides with an "enlarging" camera, the correction to a moderate extent may be made by including the negative to the same extent as when it was made, but in the opposite direction. The negative must be on transparent medium, of uniform texture, perfectly flat, and the coated side next to the lens to avoid reflections.

This false perspective has often been charged to the score of photography as one of its faults. It would never occur with a lens of sufficiently long focus, and is not the fault of photography, but of the photographer, or, may be, of the conditions which limited him at the time.

Criticism of photography based on photographs made deliberately with selected suitable apparatus, and with position, time and light deliberately adjusted is perfectly proper, but hand-camera pictures are rarely such, and before being used by artists for any purpose should be righted or they will reflect discredit on photography as being distorted and untrue to nature.

It may be added that slides of statuary made from below the subject will be "big-legged" and "small-headed," and the down-tilting of the lantern will project the head larger and the feet smaller more nearly in the true ratio as designed by the artist. But this remedy is difficult to apply, and the time to remedy defects in a slide is when it is being made. Of course a perfect negative makes a perfect copy. This is a suggestion as to how many optically imperfect negatives may be corrected. It is not a novelty, as of course it must occur to any one acquainted with photographic optics.

Major J. W. MacMurray, U. S. A.

A TRAGEDY OF THE DARK-ROOM.

Said Pyrogal to Molly Cule
"Now wilt thou fly with me,
And from that greedy Hydrogen
For ever more be free?"
"Oh I'll be glad to leave H. to
His lone remorse," she said ;
And forth upon their joyous way
These lovers quickly sped.

Poor Hydrogen when he got left
In this most cruel way
Grieved much, his loving little heart
Could not thus lonely stay.
"Oh come to me and be my bride!"
He cried to Br. fair,
And quick she nestled by his side
And soothed his lone despair.

But N. A. Soda joined them too,
So Sir Carbon Dioxide
Strait wandered off to foreign parts
To seek another bride.
And old Argentum, whom Br.
Right in the lurch had left,
Put on deep mourning for the love
Of which he was bereft.

Dallett Fuguet.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 525.)

CHAPTER VII.

Reduction of Proofs on Paper.

Reduction of Over-printed Silver Prints on Albumenized Paper.—It is not an easy thing to learn the exact degree of over-printing which is necessary to furnish the "perfect" prints, after the slight reduction which it undergoes in the subsequent operations of toning and fixing.

Again, having learnt the exact shade or depth required, it is not always the case that the print is removed from the printing-frame at the right moment. With the professional printer, whose whole time is given to the looking after a large number of frames, doubtless the percentage of prints spoiled by over-printing is very small; but with the average amateur it is large. Other objects direct his attention ; the power of the light is

under-estimated, and then, when the frame is opened, the print is "as black as my hat!"

Several attempts have been made to discover processes by which such over-printed prints could be made passible. As a rule these processes result in failures. Not that they do not *reduce* the prints; but that at the same time the tone or color of the print is altered, and for the worse, while mealiness is frequently produced.

But it is not unfrequently the case that it is desirable to save the print, even if the result be somewhat inferior to what we could desire. In such cases the following methods may be tried.

Reduction of Prints with Hypo.—If the over-printing be only slight, reduction may be effected by leaving the print for an hour or two in a fresh solution of hyposulphite of soda. Given time enough, the hypo will dissolve the finely divided silver of which the image is composed. The hypo bath used for this purpose should be fairly strong (say 6 ounces of hypo to 20 ounces of water), and its temperature should be about 70 deg. Fehr.

2. *England's Method with Cyanide of Potassium.*—In 1881, Mr. William England recommended* a bath "of only four drops of saturated solution of cyanide (of potassium) to a pint of water," for the reduction of silver prints.

In this extremely weak bath the prints show no signs of change until about an hour has elapsed. They must then be removed, washed well in water, and dried. Cyanide of potassium had been used for a like purpose long before 1881; but not with success. The new print in this method consists in the extremely dilute state in which the solution is employed. Chemically speaking, the action is simply that the cyanide combines with the silver to form a soluble compound.

3. *Dunmore's Method with Mercury Bichloride*, 1890.—Make up the following solution:

Mercury bichloride	12 grains
Potassium bromide	12 grains
Water	4 ounces

In this immerse the dark prints, and watch them carefully until they are of the right depth, which will be in a few minutes. Mr. Dunmore states that prints which he treated in this way ten yeas ago have not faded. The solution can be used repeatedly until its strength is exhausted.

4. *With Common Salt.*—After the dark prints have been toned, fixed, and dried, they are placed in fresh hypo solution of the usual strength, to which a little methylated spirit has been added. The following answers well:

Hyposulphite of soda	2 ounces
Methylated spirit	2 ounces
Water	10 ounces

After soaking for ten minutes transfer the prints to a saturated solution of common salt; and after five minutes put them back into the hypo again. With extremely black prints about five drops of a saturated solution of cyanide of potassium may be added to the salt bath.

5. *With Alkaline Ferridcyanide.**—Farmer's reducer, which has met with so much favor for reducing negatives, has been condemned for prints; but by the addition of an alkali it is, according to to Mr. Sherman, capable of acting as efficiently upon over-printed silver prints as upon negatives. Make up the following stock solutions:

A.	Ferridcyanide of potassium	1 ounce
	Water	1 pint
B.	Carbonate of ammonia	1 pound
	Water	5 pints

This is a saturated solution.

C.	Hyposulphite of soda	1 ounce
	Water	10 ounces

For use add to C 1 dram of B, and enough of A to make it a light lemon color.

Put the mixture in a white dish and immerse the prints to be reduced (one at a time) in it. Remove them to a bath of salt water (a handful of salt to a gallon of water) when sufficiently reduced. Then wash well and dry. This method also improves yellow prints, and prints which have been made on stale paper.

6. By using the chloride of lime toning bath; or by toning with platinum, overdone prints can frequently be persuaded to assume a respectable appearance. Each of these toning methods, in fact, *requires* a certain amount of over-printing.

Reduction of Bromide Prints.—Bromide prints can be reduced in just the same way as negatives. ——McG

Reducing Over-Printed "Blue Prints."—1. Soak the prints in

Potassium carbonate	100 grains
Water	12 ounces

They will gradually be reduced. Then rinse; wash for five minutes, and immerse for a few seconds in

Acetic acid	25 minims
Water	4 ounces

This brightens up the prints. Finally, wash for ten minutes, and dry. This method was described by Messrs. J. P. and F. C. Beach in 1888.

* "Journal of the Photographic Society," New Series, Vol.V; p. 138.

* W. H. Sherman, in "Photo Mosaics," for 1888.

2. Dip the prints first into a 5 per cent. solution of ammonia, and then into hydrochloric acid of the same strength. Dilute these solutions if they act too rapidly.

W. Jerome Harrison.

(*To be continued.*)

AN EASY METHOD FOR WASHING NEGATIVES.

I WAS much troubled to get my negatives thoroughly washed, I tried the various methods I heard of, but none met my perfect satisfaction, until I had a box made of zinc, about 14 inches long, 8 inches wide, and 10 inches deep, wired around the top to make it stiff and firm, a faucet placed in the bottom at one end, and little feet of solder on under-side to preserve the bottom, also corrugated strips of zinc, fastened at intervals on the inside, the strips placed so as to have the depressions exactly opposite the next strip, and the right distances to hold negatives from ¼ to 5 x 8 plates in an upright position. I kept this box in my sink, which had an outlet, and I found it a very easy matter to let the water run in the box from the faucet above, connected with my water-tank, and gauge it, to correspond with the faucet in the bottom, so that the box could be kept full as needed, and yet the water was constantly changing. I could place about 20 negatives in a box of this size, the number depending on the strips of zinc—they should be bent up quite deeply to hold the negatives more securely, and also a larger number, about like this:



The strips are to be placed in the box lengthwise, 2 in the bottom, at equal distances from side and center, and 1 strip on each side of box, 3 inches from bottom will answer for the ¼ size, or 5 x 8. The box is intended to be just wide enough, with the strips in, to admit a 5 x 8 plate resting in the grooves at each end and bottom. The smaller plates will keep their position if placed in carefully, as the grooves in bottom must correspond to those on the side. I believe this box for negatives is the most simple and useful that can be placed in any gallery whether large or small, for if any one does not have either water-tank or hydrant, the box can be filled with a pail, and let it run off after a half an hour or so and more put in, without danger of scratching the negatives. Of course, these boxes can be made any size desired, and are just as convenient for large as small negatives, but more needed for cabinet sizes than any other because of the greater number made in all galleries.

Mrs. E. N. Davison.

Notes and News.

The Springfield Camera Club will give its fourth annual exhibition of photographs the second week in November at Gill's Art Galleries.

Fire.—J. V. ESCOTT & SONS, well-known photographic merchants of Louisville, Kentucky, were burned out Tuesday, October 27th. The loss was very heavy, but we understand is fully covered by insurance.

Our Portrait of Bishop Brooks is unavoidably delayed until next week. The subject was such as required more time to reproduce than we anticipated, and the large edition of phototypes necessary to illustrate our magazine could not be finished in time for this issue.

C. Gentile, editor of the *Photographic Eye*, has been mentioned in connection with the office of Superintendent of the Photographic Department of the Columbian World's Fair. Mr. Gentile is certainly well equipped for the office, having had a valuable experience in practical photography and understanding several languages.

You Couldn't Do It Yourself There.—Photographer: Now look pleasant, please.

Customer: It is quite impossible, sir. I'm a ticket agent in a railroad office.—*Yonkers Statesman.*

F. Gutekunst has made an artistic success of his photographic panorama of Philadelphia harbor, showing the islands in course of removal by the United States Government. The picture is a marvel of its kind, the negative being 10 inches high by 35 inches wide, produced by a French panoramic camera, the lens of which revolves on a pivot, taking in a wide and expansive view without distortion and reproducing it as a clear and telling print. The picture is not only a admirable proof of the resources of mechanical science as applied to photography, but is a voucher for Mr. Gutekunst's skill as an operator.—*Philadelphia Times.*

Lincoln and the Portrait Painters.—The question of looks depended in Lincoln's case very much upon his moods. The large framework of his features was greatly modified by the emotions which controlled them. The most delicate touch of the painter often wholly changes the expression of a portrait; his inability to find that one needed master touch causes the ever-recurring wreck of an artist's fondest hopes. In a countenance of strong lines and rugged masses like Lincoln's, the lift of an eyebrow, the curve of a lip, the flash of an eye, the movements of prominent muscles created a much wider facial play than in rounded immobile countenances. Lincoln's features were the despair of every artist who undertook his portrait. The writer saw nearly a dozen, one after another, soon after the first nomination to the Presi-

dency, attempt the task. They put into their pictures the large rugged features, and strong prominent lines; they made measurements to obtain exact proportions; they "petrified" some single look, but the picture remained hard and cold. Even before these paintings were finished it was plain to see that they were unsatisfactory to the artists themselves, and much more so to the intimate friends of the man; this was not he who smiled, spoke, laughed, charmed. The picture was to the man as the grain of sand to the mountain, as the dead to the living. Graphic art was powerless before a face that moved through a thousand delicate gradations of line and contour, light and shade, sparkle of the eye and curve of the lip, in the long gamut of expression from grave to gay, and back again from the rollicking jollity of laughter to that serious, far-away look that with prophetic intuitions beheld the awful panorama of war, and heard the cry of oppression and suffering. There are many pictures of Lincoln; there is no portrait of him. In his case there was such a difference between the hard literal shell of the physical man, and the fine ideal fiber, temper, and aspiration of his spirit; the extremes were so far apart that no photograph or painting of the former could render even an approximat representation of the latter.—*J. G. Nicolay in October Century.*

The Russian Platinum Mines.—All the platinum of Russia comes from one district, the government of Perm, says the *American Druggist.* In 1885 the output amounted to 110,635 ounces, and in 1886 to 184,336 ounces. Hitherto it has only been found in alluvial deposits, and is always associated with gold. The proportion of the two materials varies greatly, the platinum sometimes being in greater quantity than the gold, in other places not constituting above 1 per cent. The former deposits are the more profitable to work. The most important of these distinctly platiniferous deposits occur in the district of Nijni-Taguil, near the watershed of the Urals.

All the platinum-bearing streams of this locality descend from Mount Solovskaia, which is composed of a serpentine rock. The rivers have greatly exceeded their present size in former times, or else, which is more probable, have shifted their course; for the wide valleys in which they flow contain alluvial deposits of considerable extent, which are exploited for platinum, and to a less extent for gold. Between Mount Solovskaia and the diorite mass of Mount Blanche the surface is covered with rounded boulders of serpentine and peridotite rock. As these boulders decompose under the action of the air they form a sand or gravel from which the metal can be profitably extracted.

This is similar to what takes place in the weathering of the diamond-bearing peridotite of Kimberley, which is exposed to the disintegrating action of the atmosphere before being washed for diamonds. The platinum of the alluvial deposits occurs in grains, or pound of 10 Kgm. weight. The gravel often contains one-half ounce per ton of platinum, but can be profiably worked for one-tenth ounce. The deposit near the banks of the River Martiane consists of a serpentine conglomerate, and is from 4 to 5 M. in thickness. Above is a thickness of 23 to 24 M. of barren ground, chiefly clay. Most of the alluvial auriferous deposits in which platinum is found are in the the neighborhood of peridotite rock, or of serpentine rock formed by the partial alteration of the peridotite.

Thus the river Mioss takes its source from a mountainous district mainly composed of serpentine rock, and accordingly the auriferous deposits near the head of the river are rich in platinum; but further down stream, as the serpentine formation is left behind, the gold becomes less platiniferous. Small nuggets of platinum are sometimes found embedded in pieces of serpentine, of peridotite and of chrome iron ore, all constituent minerals of the peridotite rock, which there is good reason, therefore, to regard as the true mother rock of the platinum.

The richest deposit of the Nijni-Taguil district is that of Avrarinski, extending for a length of 2 Km., 20 to 60 M. wide and of a thickness of 4 to 5 M. Here the platinum is found to the amount of 4½, 5, and sometimes even 9 ounces per ton. The metal contains a small proportion of gold, about 0.26 Gm. per Kgm,, which is separated by amalgamation. The crude platinum left contains about 90 per cent. of pure platinum. From October, 1886, to August, 1887, the production at Avrarinski was 40,475 ounces.

The working of these deposits is to a large extent sublet by the proprietors to the peasants of the district, who are paid by the weight of metal obtained. They construct their own washing and other machinery, which is made of wood and is of a very crude description. The conditions with regard to cost of living, wages, and so forth, are, of course, very different from those obtaining in new countries, such as South Africa, where the precious metals are exploited.

Mr. Webster, representing the Buffalo Dry Plate & Argentic Paper Co., was in New York last week.

The Latest Acquisition to Photographic Circles from the nobility is Count Luigi Primolo, who is a son of Prince Borghese and Pauline Bonaparte, sister of Napoleon I. The count has already acquired great skill as an amateur photographer, his most famous achievement being the portrait of the Pope, which he made during a recent ceremony in the Vatican. Mr. W. J. Stillman, the art critic, writer and traveler, recently made a photograph in the Villa Borgese, where this leader of the Italian Bonapartes resides, which will appear in the forthcoming volume of the "American Annual of Photography." He calls it "An old Roman Garden," and it certainly is a most pictorial piece of photographic work. The extensive park which forms the residence of Prince Borghese is full of such beauties, according to Mr. Stillman, so that the young count is supplied with a rich field for the work of his camera without stepping off his own possessions.—*Outing for November.*

ON THE USE OF COMMON PHOTOGRAPHIC OBJECTIVES IN CELESTIAL PHOTOGRAPHY.

[Translated from "Sirius," for THE PHOTOGRAPHIC TIMES.]

LAST year I had to photograph repeatedly the Pleiades, for photometrical purposes, with a small Steinheil Aplanate of 2¼ in. opening. In this work I was surprised to find on my plates, after only *one* hour's exposure, not only all those nebulæ obtained by Messrs. Henry with their

large objective, after *several* hours' exposure, but also a much greater extension of the nebulous masses, than we knew of till now.

A more attentive examination of such a result obtained by a small double objective shows, however, that there is nothing remarkable in it, but that it is quite natural. It is only remarkable that these common double objectives of photographical practice have so far found so little employment in celestial work.

The conditions will be easily understood by an illustration. We will compare the normal refractor chosen for the photographical chart of the heavens, of 33 cm. opening and 343 cm. focus, with a small double objective employed by me, viz. with a portrait objective of Hermagis, of 5.8 cm. opening and 20 cm. focus.

In photographing fixed stars the brightness of the image depends—*ceteris paribus*—only upon the surface of the opening of the lens employed, as we have here only a point of light. Here the large refractor would be thirty-two times superior to the small portrait lens. In other words: If we want to photograph with the portrait lens as faint stars as we would obtain by means of the 33 cm. refractor in *one* hour, we would have to expose for about thirty-two hours. In fact this superiority of large objectives of long focus over the small ones of short focus does not actually take place, as the stars do not appear absolutely as mathematical points. Still the superiority of the large objective over the small one is very great in photographing stars.

The conditions are very different with objects giving extended images on the plate, as nebulæ, comets, planets, meteors, etc. With a doubled focus of the lens an image will cover the fourfold surface on the photographic plate and a point on the plate will receive only the fourth part of the light. In such a case, therefore, the light intensity of an objective is given by the square of the fraction: diameter of objective by focus, as is well known to every portrait photographer.

Therefore, supposing the light intensity of the 33 cm. refractor, in regard to nebulæ, to be equal to 0.01, we find the same equal 0.08 for the small portrait lens with full opening. In other words: If we want to obtain by the large refractor photographical impressions of such faint nebulæ as we got by the small portrait lens in *one* hour, we have to expose with the large refractor *eight* hours.

It is true there is a loss of light through reflection from the two additional surfaces of the portrait lens, but, still, according to my experience, the portrait lens must be at least five times superior to the refractor. May be the light-strongest aplanates will be the most suitable for our purpose on account of the plane image-field. They are, however, set with difficulty in such a way as to allow the over-exposed stars to appear without distortion.

As alluded to before, there is another point which gives, in another respect, the first place to double objectives of short focus. They allow to represent a much larger part of the heavens at once than the telescope objectives, so that, together with the great light intensity, the common photographic double objective has to be regarded as the best instrument for *detecting* faint nebulæ and comets.

Further, the price of such lenses is very low, and the short camera can be attached with little trouble to any equatorial. The refractor is used as pointer, and the pointing is very easy, since a great displacement of the pointed star in the ocular of the refractor does not cause a perceptible displacement of the image on the plate of the short camera.

When commencing my observations on nebulæ I was not acquainted with the fact, that meanwhile Professor Pickering, in America, had begun a similar survey of the heavens with an eight-inch portrait lens, and among a number of interesting nebulæ, which I considered as new, some had been known already in Harvard observatory. Thus *f. i.* the large nebula around ξ Orionis and others in the same region.

This ξ Orion nebula is one of the most wonderful objects in heaven, and its brighest parts cover several square degrees. The part already formerly known, east of ξ has the aspect of an immense vortex. The nebula around ε Orionis is connected with the former by diffused nebular mass. This nebula presents around the star ε a condensation, through which run three finely-designed double rays. In a wide arch the nebula extends from ε farther west, and shows about 1 degree W. of ε its greatest condensation. Diffuse nebulous masses, join it from all sides, and we see them passing over into the large Orion nebula (near Σ), and, with several condensations, extending nearly through the entire constellation of Orion.

Another nebulous mass of enormous extension I have found in the constellation Monoceros. It connects the nebulæ G. C. 1440 and 1425, and seems to reach to the far-extended nebula discovered last year by Barnard, in the cluster G. C. 1420, and still farther.

My plates let it further appear probable that nebulous masses are running over the Hyades and Pleiades, and the nebular masses in Cygnus originating from Neb. G. C. 4621, seem to have a similar range of extension.

One can scarcely refrain from suspecting that next to or within the galaxy from Monoceros to Cygnus, or even through the entire "Milky Way," an immense nebular ring passes around the heavens.

The unfavorable weather of the last months unfortunately prevented further studies in this direction. So far, therefore, only scattered indications exist, and each new trial with small and light-strong double objectives may bring the most important results.

Moreover, the double objectives give us very valuable disclosures regarding the structure of the smaller nebulæ. As an illustration I will mention that I obtained, with a 4-inch portrait lens, in four hours' exposure, from the Andromeda Neb., all ring-detail, by which, a few years ago, the skill of Mr. Roberts has surprised the world.

It is strange to think that for so many years the objectives stood at hand at the photographers' studios, and that it was only wanted to direct them toward the heavens in order to furnish us such results.

Here I wish to remark that with long exposures it is necessary, in order to prevent the formation of the well-known light rings around bright stars, to coat the glass side of the plates. The best coating for the purpose is a viscous mixture of lamp-black and linseed oil, which has to be wiped off superficially before developing. Such a coating keeps a long time in its viscous condition. Once, after having exposed, on three successive evenings, on the same plate, the coating was still quite fresh and was wiped off on the third day as easily as on other occasions on the first day, and the stars had remained quite sharp and free of rings.

In searching for nebulous masses near the galaxy, there arises the difficulty that the faintest stars will present the aspect of nebulous masses But this may be avoided by employing two objectives of different size for two negatives, which will dispel all doubt. Small light-strong objectives will give the nebula earlier than the faintest stars.

On account of the large field, aside of the intensity of light, the double objectives are also very suitable, as is well known, for photographing meteors. On one of my latest photos of Ursa Minor, taken with the 5-inch Kranz (on April 1, 1891), a meteor of medium brightness has drawn its path on the plate. Its furrowed path is at first scarcely recognizable, becomes then gradually brighter in its course, to end abruptly at the edge of the exposed part of the plate. The meteorite seen likewise with the eye passed Ursæ Minoris immediately (a little south) towards 40–41 Draconis and drew its path for a distance of more than 7 degrees on the plate.

The graduation in brightness upon the gradual entrance into the denser parts of our atmosphere, as shown by the plate, alone merits our interest.

Without doubt a grateful field is here opened for the use of common double objectives, especially for amateurs of astronomy.

Max Wolf.

The Editorial Table.

Die Amateur Photographie, Robert Talcot: Berlin, Romain Talbot.

This is a concisely written and comprehensive manual of forty chapters, well illustrated with cuts, and making, altogether, one of those useful copendiums which the young amateur photograper can hardly do without. The chapter on micrography is especially well written. The necessary apparatus is described in detail, and the information given will be found of particular value to the beginner in this interesting branch of photographic work. In treating the subject of magnesium flash-light photography, the author seems to feel that Americans have been unjust to Herr Gaedicke, who undoubtedly is entitled to the credit for having first made this method practicable. There were some American amateurs, to be sure, who accepted more credit than they were justly entitled to, but on the whole it has been pretty generally understood on this side that Herr Gaedicke was the one entitled to all credit in this matter.

"The Hidden City." By Walter H. McDougall. New York: Cassell Publishing Co.

This interesting story, by Walter H. McDougall, of the New York *World*, which was announced some time ago in these columns, has been issued by the publishers, and comes to us in attractive shape, with illustrations by the author. The story is somewhat in the Rider Haggard vein, but is none the less interesting for that, our readers may be sure, and the illustrations are characteristic specimens of this clever artist's work.

The Ride to the Lady and Other Poems. By Helen Gray Cone. Boston and New York: Houghton, Mifflin & Co.

This is one of the strongest collections of poems recently brought out by an American poet. There are forty-three poems in number in this neat little volume, and all are of the very highest order, both as to originality of conception and beauty and power of execution. We reprint one of the poems, which is fairly representative of the collection, and will be esteemed especially by the knights of the camera. Its subject is suggestive and appropriate. The publishers' imprint insures, of course, the very perfection of printing, paper and binding. The poem we reprint is entitled:

THE GLORIOUS COMPANY.

" Faces, faces, faces of the streaming marching surge,
Streaming on the weary road, toward the awful steep,
Whence your glow and glory, as ye set to that sharp verge,
Faces lit as sunlit stars, shining as ye sweep ?
" Whence this wondrous radiance that ye somehow catch and cast,
Faces rapt, that one discerns 'mid the dusky press
Herding in dull wonder, gathering fearful to the Vast?
Surely all this dark before, night of nothingness !"

Lo, the Light [they answer] *O the pure, the pulsing Light,*
Beating like a heart of life, like a heart of love,
Soaring, searching, filling all the breadth and depth ana height,
Welling, whelming with its peace worlds below, above !

" O my soul, how art thou to that living Splendor blind,
Sick with thy desire to see even as these men see !
Yet to look upon them is to know that God hath shined :
Faces lit as sunlit stars, be all my light to me !"

The Bulletin of the Photo Club of Paris has an interesting series of illustrations done in photo-gravure in the text of the article describing them, a novelty in photographic journalism. The work is done by Thevoz, of Geneva, after negatives by Boissonas, of Geneva.

"Outing."—The November number of *Outing* is a remarkable one, both for number and beauty of illustrations and variety of interesting reading matter. This excellent magazine has improved so rapidly of late that it is difficult to understand how the publishers manage to secure the astonishing variety of high-class contributions, The current issue is proof positive that *Outing* is in able hands.

" Wide Awake."—It is worth everybody's while to buy the November *Wide Awake*, for three notable features: "The Boyhood of Hawthorne," by his relative, Mrs. Richard Manning, of Salem, Mass., which is full of family anecdote and gives a photograph of the first portrait painted of Hawthorne ; the closing chapters of Margaret Sidney's famous Peppers serial ; and "Nolan," a ballad by Mr. Laura E. Richards, giving the tragic story of the bearer of Raglan's dispatch to Lucan's "Light Brigade," when they made the famous "charge" at Balaklava.

Wide Awake is $2.40 a year. D. Lothrop Company, Boston.

"In the Harvest Field."—Commenting on this picture by Miss E. J. Farnsworth, which appeared in the September 11th issue of THE PHOTOGRAPHIC TIMES, the genial

editor of the *Beacon* writes as follows in the current issue of this excellent journal:

"As we have more than once said before, the majority of the illustrations in most of our contemporaries are only useful as advertisements of somebody who printed them on somebody else's paper, and. as examples, positively injurious to those—and they are a numerous class—who are ignorant enough to follow them, that when something really excellent appears we cannot resist the desire to praise it. Of such is the picture from a negative by Miss Farnsworth that appeared in THE PHOTOGRAPHIC TIMES of September 11. "In the Harvest Field" is really a charming picture: a group of four girls resting from their labors of cutting and shocking the maize, three of them being represented as admiring a fine specimen of the ever present pumpkin, while, true to nature, the fourth, heavy at heart, sits apart brooding over real or fancied wrong. The picture is, with one little exception, so perfect in composition and light and shade, that we cannot help calling attention to the fault, the more especially as we know that one so imbued with true art feeling will appreciate honest criticism. It is a canon of art that no two or more prominent objects be placed on a line perpendicular to each ather, and this, in the case of the two central figures, has been violated. If the standing figure had been placed a few inches to the left, her light drapery would have been brought against the dark of the shock behind, and the objectionable perpendicular line obviated.

"We have taken the liberty of making a lantern-slide from the picture, believing that Miss Farnsworth will not object to our so utilizing her picture to give pleasure to others.

POSITIVE PRINTS ON PAPER.—Dissolve in water 1,000 grammes, peroxalate of iron and ammonia 300 grammes. The solution being prepared keep it in obsurity, as it is rapidly decomposed by light. Choose a paper sized with gelatine, use the smoothest side, and make a mark on the back with a pencil. Pour the above solution into a porcelain dish, float your paper on the solution for four minutes, and hang up to dry in obscurity. The solution may be used until exhausted, and the paper coated with this salt kept indefinitely, provided they are both kept away from the light. The exposure in the positive frame is made according to the intensity of the light or of the print; if on coming from the frame the print appears a little weak, or in the condition of a negative, care must be taken to have at once recourse to the following operation: The print is floated on a 5 per cent. bath of nitrate of silver. For the sake of economy the print may also be placed on bibulous paper, and the surface rapidly passed over with a cotton brush (a wad of cotton in a tube). The image immediately appears of a purplish-brown color if the exposure has been good. If the paper is sized with starch or arrowroot the tone of the image will be blacker. The print may be toned with chloride of gold. It is fixed either with hyposulphite of soda, or in the following bath: Sulphocyanide of potassium, 100 grammes; water, 1,000 grammes. Wash in several waters.—*Chas. Gravier, in L'Amateur Photographe.*

Record of Photographic Patents.

461,609. Photographic Objective. Ernst Gundlach, Rochester, N. Y.

Gratitude.—Crooks (who has just had his picture taken for the rogues' gallery): "Thank ye, boss; you're the the first photographer who never axed me to 'smile a little more, please.'"—*Judge.*

Queries and Answers.

159 *Answer to J. L. F.*—You do not state distinctly what toning bath you refer to, neither do you describe your method of preparing it, else we might be able to answer your query more detailed. The precipitate formed is probably metallic gold, caused by impure chemicals, or an incorrect method of mixing the gold solution with the other substances Some toning baths, mainly so those with chalk or weak alkaline salts, require ripening for days or for hours, but those with strong alkalies, like the Chautauqua bath, may be used almost immediately after preparing. But if the Chautauqua toning bath has been allowed to stand for several days the trichloride of gold is converted into subchloride, and when much alkaline is present into suboxide finally. Then the bath will not tone; but it can be restored to its original energy by adding a few drops of hydrochloric acid and subsequent neutralization as in the first instance. We advise to adhere to the use of the Chautauqua bath, and to prevent further trouble, to mix about equal volumes of old with freshly prepared solution, a method adopted by many practitioners and in the Chautauqua School.

160 *Answer to C. W. H.*—Aristo paper, or aristotype paper is coated with chloride of silver, emulsified with collodion or gelatine, and the same name is used in either case. The same kind of paper is also known by several other names, but there is no difference between them than the carrier of the sensitive substance. Omega paper has gelatine for its basis, and when your dealer sends it to you, when aristo paper is called for, he is perfectly justified. Collodion aristo paper presents several disadvantages. It curls up when washing, toning and fixing, does not tone as uniformly as gelatine paper, is difficult to mount, and probably less durable than the other kind. The American aristo is probably collodion paper, which, however, does not imply that it is positively bad. All aristo paper can be printed upon without additional preparation. It is ready sensitized, as you term it. A good formula for separate toning bath you will find on page 341, "American Annual of Photography," standard formulas Nos. 118 and 119

161 C. BENOIT has composed a developer of hydrochinon, yellow prussiate of potash, and caustic soda. The solution works quite well, develops excellent details, but the gelatine film is softened so excessively that it is almost impossible to keep it intact.

161 *Answer.*—We have never advocated the use of yellow prussiate in developers because of the very thing you complain of. Were you to harden the film in alum after developing it might remain on the glass support; but the gelatine might shrivel up and make the negative unfit to print from.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

OCTOBER, 1891.

NOTICES TO STUDENTS.

Examination papers will be presented to students on or about December 1st.

The advanced class was re-opened on October 10th. Course of instruction, two years. Tuition fee $10, including one year's subscription to THE PHOTOGRAPHIC TIMES, a copy of Roscoe's Elementary Chemistry and R. Meldola's Photographic Chemistry. The reading for new students in the first term is: In Roscoe, Lessons I to IX; in Meldola Lectures, II and IV. The studies for the second term will be prescribed to each individual student.

Under-graduates and non-members of the Chautauqua School desiring to join the class should report at once for examination.

THE public lantern exhibition at Chautauqua having been of significant success, all members and ex-members of the school are particularly invited to devote part of their time to the making of slides. The productions of the school will be more extensively exhibited next summer than ever before.

PARA-AMIDOPHENOL.—It occurred repeatedly in the practicing class of last summer that negatives developed with hydrochinon, and also with eikonogen, turned partly or all over the plate to a yellow color of more or less intensity, according to the length of time the plate had been subjected to the action of the developer. The cause of the annoying but nevertheless very frequent irregularity is attributed to an action of the oxydation products of these substances, and when developing has been carried on for a long time. Means to destroy the yellow fog, and to reduce the plate to its wonted transparency are well enough known, but the absence of the fog is much more desirable than remedies for its removal.

A newly-recommended organic reducing agent is entirely free from this property, and gelatine emulsion plates may be developed in its solutions for an indefinite time without danger of yellowing. It is the para-amidophenol of which mention has been made to the students of last summer's session and with which to experiment we had then no opportunity. Investigations have shown the substance when prepared either with caustic or with carbonate alkalies to make excellent developers. Para-amidophenol and caustic soda yield negatives of high intensity and absolute transparency. With carbonates the action is less energetic, and, if sufficiently diluted, productive of better half-tones. Formulas have been given in PHOTOGRAPHIC TIMES.

Para-amidophenol being but little soluble in water we proceed, when making the developer, exactly as in the case of the Chautauqua eikonogen in one solution. The solution is perfectly clear, transparent, and of reddish-brown color.

We should like our scholars to try para-amidophenol and those especially who have so much trouble in getting clear and transparent lantern-slides with eikonogen.

Omega prints, squeegeed upon very fine ground glass, will detach without gloss and with matt surface resembling plain silver or platinum prints The effect is very beautiful and highly artistic, especially where the tone of the print is a positive black.

Of all the burnishers now in use, none does as excellent service to the amateur as the Acme Burnisher. It is of fine finish and elegant appearance; the roller moves easily over the print without the expenditure of much force; it produces highest enamel gloss; a thermometer is attached for the regulation of temperature; it is heated with alcohol, gas or petroleum without depositing soot.

An 8-inch machine, capable of burnishing an 8 x 10 print, costs but $10—a fact not to be overlooked.

THE EXCHANGE CLUB.

At the annual meeting and election of the club, which was held at Chautauqua, on August 21st, the following officers were chosen for the ensuing year:

President—Charles Ehrmann.
Secretary—Mrs. C. L. Pierce,
Elmhurst, Riverside, Conn.
Assistant Secretary—Gould W. Hart,
1,028 Gates Ave., Brooklyn, N. Y.

A vote of thanks was rendered the former Secretary and Assistant Secretary.

The Fall exchange of the present year becomes due on November 15th. Contributions received after that date will not be distributed—held over for the next term or returned at the senders' expense.

Application for membership must be made to the President and be accompanied by three finished prints. The President is authorized by resolution of the Society to reject application if in his opinion the applicant is not far enough advanced in photography to compete with the members of the club.

To facilitate mailing of unmounted photographs, we advise to squeegee all prints—Omega, Aristo, and those on Bromide or Albumen paper—upon a ferrotype or ebonite plate.

Club members, not subscribers to THE PHOTOGRAPHIC TIMES, will be furnished with those numbers of the journal containing the Chautauqua Supplement after paying an annual subscription fee of $1 to the President of the Club. Separate prints of the Supplement will not be furnished.

Exchange prints should be made with more than usual care, and should be uniform in depth of tone and color. The members are urgently requested to be prompt in delivery.

The Exchange of the August term is distinguished by being the least numerous of any ever made. The following pictures only have come to hand:

No. 195.—Percy Wells. An exceedingly fine landscape, with broad and strikingly artistic effects. Technically it is of the kind we like to see more often presented to us by members of the Club and students of the School. It is simply without fault, carefully developed, and printed with fine tone upon Three Crown paper.

No. 220.—Mrs. C. L. Pierce. Were it not for the two telegraph poles disfiguring this picture so disastrously we would have a genre equal in composition and general effect to those beautiful rustic and pastoral scenes by Weber and Willmann. Otherwise we think it to be an excellent specimen of Chautauqua work and feel proud of it, but take occasion to admonish all of our students to exercise attention and caution when making pictures and selecting views. In the present instance, for example, a much more attractive picture might have been obtained by slightly changing the scene—quite easily to be done with hay-wagon and surroundings. A rod or two farther on or off might have avoided the telegraph poles without detriment to the general composition or illumination of the objects constituting the picture.

No. 485.—A. Neal. "In Bear Creek Cañon." A very beautiful photograph of a grand and picturesque view in the Rocky Mountains. It was taken with a Waterbury B lens, and can vie in sharpness and detail with pictures made with more expensive objectives. No. 485 began to photograph but a short time ago, and his connection with the school dates but to February last, nevertheless his productions can safely be placed among those of older members of the school and those in our front ranks.

No. 476.—W. F. G. Geisse. As fine a photograph as the foregoing, accurately and carefully developed, all detail being well brought out.

No. 447.—Miss M. L. Ewen. Landscape on the Hudson. Instantaneously taken with a Waterbury detective camera. A nice little picture, showing much progress in technical work.

Nos. 220, 485, 476 and 447 are printed on Omega paper, but in regard to tone are utter failures. They all have remained too long in the combined fixing and toning bath, hence their smutty, greenish-black tones and yellowish-whites. Those selecting Omega paper to print upon should follow the advice frequently given in the columns of the PHOTOGRAPHIC TIMES, and by the Instructor, not to tone deeper than to a purple, and judge of the tone by transmitted, not by reflected light. When the gold is quite or nearly exhausted from the bath, the tone is produced by sulphuration, and the whites turn yellow. This seems to be the cause of the inferior tones of these pictures. On page 194 of the present volume of this journal, excellent advice is given in regard to toning Omega paper.

No. 32.—Miss Ella Switzer. "On the St. John River, Florida." A very pretty little instantaneous photograph of semi-tropical vegetation, printed well on Omega paper. It is of excellent tone and brilliancy.

No. 38.—Mrs. L. H. Mull. "Day Dreams." A good, sharp and well-developed picture on albumen paper. The motive chosen for the picture leads one to believe the dreamer represented by a different subject would have rendered the picture more interesting and expressive. We do not like to see a little boy of tender age to be absorbed in day dreaming a young woman would have been much better in his place. The position of the boy is not

a very happy one ; in his white garments and in an almost forced position he looks like a white cross against the dark ground when viewed from a distance. No. 38 can do much better than that.

No. 271.—James Beattie has chosen a subject, quite interesting to many, we dare say, our school-building on the Assembly grounds. The photograph, however, does not do justice to the maker's ability and skill. Having been at the head of the graduating class of 1891, we could have expected a better specimen, but think, with him, the interesting subject will compensate for the want of quality.

Queries Answered.

No. 337.—Your queries relative to iron developer for bromide printing are answered as follows :

Ferrous oxalate was first proposed as a developer by Carey Lea, in 1877. It is of yellowish color, almost insoluble in water, but dissolves readily in a solution of neutral oxalate of potassium, owing to the formation of a double salt, the potassio-ferrous oxalate, and it is this salt that constitutes the developer. The simplest way of preparing it is obviously to mix a solution of ferrous sulphate with one of neutral potassium oxalate in proper proportion. Ferrous sulphate mixed with the acid or binoxolate of potassium—commonly known as salts of lemon—does not yield the double salt but precipitates simple, the yellow, insoluble ferrous oxalate. The same will occur when an excess of iron solution is added to the neutral salt.

(2) The green crystals separating from old ferrous oxalate developer is not ferrous sulphate as you suppose, but potassio-ferric oxalate formed from the ferrous salt by oxidation under the influence of atmospheric air. Ferric oxalates do not develop, but restrain, and we add old developer to the new in case over-exposure is suspected. Ferric oxalates combined with hypo sulphite of soda will destroy the photographic deposit of silver entirely, and they are used as reducers of over-developed negatives ; minimal quantities of hypo added to ferrous oxalate promote its developing force.

All ferric salts are yellow or red, and the ferrous green or bluish-green, with the exception of the oxalates—ferric oxalate being green and the ferrous yellow or red.

No. 40 wants a formula for hydrochinone developer in one solution.

Answer—

Hydrochinon	2 drachms
Granulated sulphite of sodium	1 ounce
Granulated carbonate of sodium	6 drachms
Water	32 ounces

can be used in this concentration, or

Hydrochinone	1½ drachms
Granulated sulphite of sodium	6 drachms
Carbonate of potassium	5 drachms
Water	8 ounces

Dilute with from 3 to 4 volumes of water.

No. 494 has a negative developed to such an excessive intensity that several hours' exposure to direct sunlight will not yield a print. What can be done with it we are asked.

Answer.—We refer you to the respective lesson. Farmer's method to reduce the density of negatives, as described there, will occasionally give the film a decidedly yellow color. For that reason we prefer to reduce with potassium ferric oxalate, as will be found in "The American Annual of Photography" for 1891, page 334, formula No. 74.

No. 502.—1. How can I make lead-pencil adhere to the gelatine film? 2. Name the best retouching pencil?

Answer.—1. Rub the part of the negative to be retouched with S. P. C. Retouching Fluid. When perfectly dry the pencil will take. Or erase the surface with finely-powdered cuttle-fish bone. 2. The harder the pencil the finer you can retouch. The hardest is the metallic pencil. But Faber's 4 H. or 3 H. will do, and, if a soft pencil is wanted, take the F. B. of the same brand.

Pictures Received.

No. 461.—Portrait of "The Fair Student." In position and accessories surrounding the figure imitative of the picture on the head of the appendix to "The Photographic Instructor." We have but rarely been as highly satisfied with a Chautauqua photograph as we are with this. Genre is evidently the student's forte.

No. 510.—Two 5 x 8 groups, printed on Omega paper. One of them very much over-toned, the other not toned enough. In technicality we cannot find fault with the work, but find the same attention and diligence displayed as when the student was under direct instruction. In posing and lighting she has much to learn yet. The group of boys may be likened to a lot of fence-posts rammed into ground; there is neither diversity of the individual position nor taste in the grouping. The position of the other group is much better, but the figures are entirely too large for a 5 x 8 plate. Do not cram the plate so full of figures that you are compelled to cut off parts of the figures near the plate ends or make the whole group considerably smaller. A moderate amount of fore and background will make a more artistic picture.

No. 554.—Two 5 x 8s on Omega paper. The landscape is well done, and quite attractive, foliage splendidly developed and distance well preserved. "Cow and Calf" is wanting considerably. To judge from the print, the negative appears to be under-exposed and much fogged, owing to the employment of all possible and impossible developing dodges in order to bring the picture out. The prints are bad. We would rather see our students to print on ready-sensitized albumen paper and produce brown or bistre tones than those sickly, greenish blacks on Omega paper. Read page 194 of THE PHOTOGRAPHIC TIMES, present volume.

No. 485.—Shows the work of his summer vacation by a collection of splendid pictures printed and toned exceedingly well on Omega paper. Some of them were made with the Waterbury B, others with the Waterbury detective, but either of them deserve to be highly praised. Of the collection are especially fine: "Team in Cañon," "Burrow with Pack," illustrating life in the Rockies, "Locomotives Ascending a Heavy Grade," and Compilation of Rocks.

We advise No. 485 to devote part of his time to lantern-slide making. It would be very pleasant to us to exhibit slides of these interesting negatives at the Assembly Grounds next summer.

No. 487.—A large number of instantaneous pictures, views of horse-races, scenes of the inevitable county fair, landscapes, in fact, a great variety of subjects. Very superior work all through, and "hard to beat" in all those instances when a comparatively slow motion of the shutter was admissible.

We would be much indebted to this dilligent and successful photographer by furnishing a lot of slides from these beautiful negatives to the public exhibitions in Chautauqua.

No. 458.—Colored lantern-slides. Reproductions of engravings illustrating "Bunyan's Pilgrims' Progress."

Coloring lantern-slides is not quite as easy a job as a student seems to think, success depending much on the selection of colors and their application. His "reds" are not transparent enough, and the "greens" put on too thick, while the yellow lights of foliage is entirely too bright. Read "Lantern-Slides," by Andrew Pringle, published by Scovill & Adams Co.

No. 499.—Stereoscopic views in Central Park. Well done.

No. 450.—Instantaneous views in New York Bay. The negatives are ruined in developing them. Read the lesson on the subject, or try para-amidophenol when under-exposure is suspected.

No. 495.—1. Mountain view near Roanoke, Va. Very good; printed too dark, but of satisfactory tone. The light spots are caused by air-bells between silver solution and albumen paper.

2. Vignetted card de visite of lady. Quite pretty. There is no fault to find.

3. Portrait of young man on orthochromatic plate. Much under-exposed; the head is not very well lighted; too much top-light and not enough side-light.

4. Carte de visit of gentleman. Foggy plate.

5. Portrait of a negress. (*a*) *Sitting figure.* Quite good. The student, following our advice, removes a colored subject to more diffused light, and produces thus well-distributed light and shade. (*b*) *Standing figure.* The subject being doubtless quite tall, the head reaches high up, and is over-exposed, while the lower part of the figure is about correctly exposed.

If it is at all practicable to alter your skylight, we advise to do it—will help as much as we can in its reconstruction.

THE

AMERICAN ANNUAL OF PHOTOGRAPHY

AND

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For 1892

Will be ready December 1st.

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W. I. LINCOLN ADAMS, Editor.

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Studio Changes.

Rockford, Ill. Mrs. E. A. Medler has sold out.

Business Notices.

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FOR SALE.—Eastman Bromide Paper of the following sizes: 3¼ x 4¼, 4 x 5, 4¼ x 5½, 4¼ x 6½, 5 x 8 and 8x10 of the C grade. Discount 30 per cent. from the list prices.

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WANTED.—A live salesman, well posted in the stock trade. Address M., care GEORGE MURPHY, 2 Bond Street, New York.

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When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

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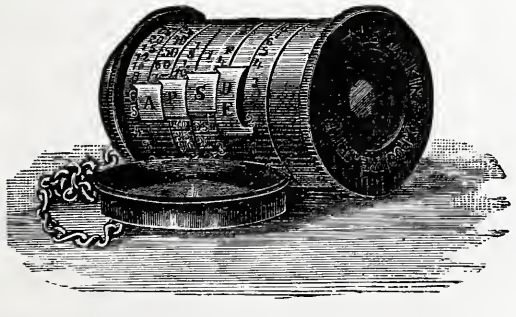
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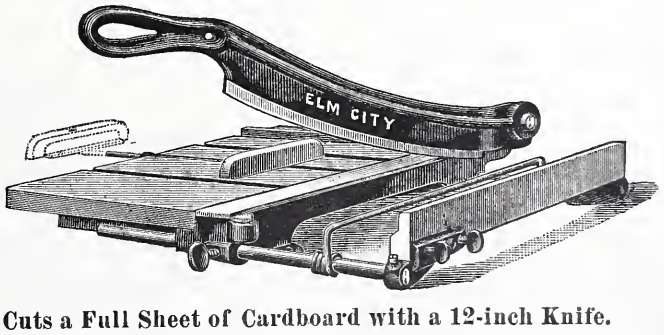
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Will do everything a Plain Plate will do, and

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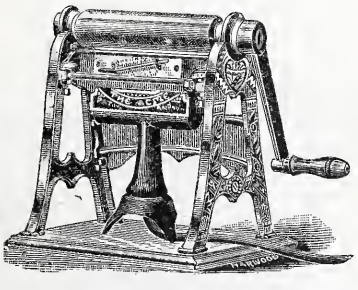
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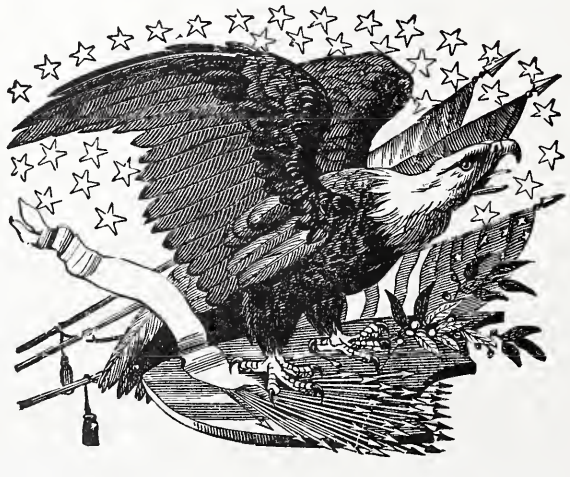
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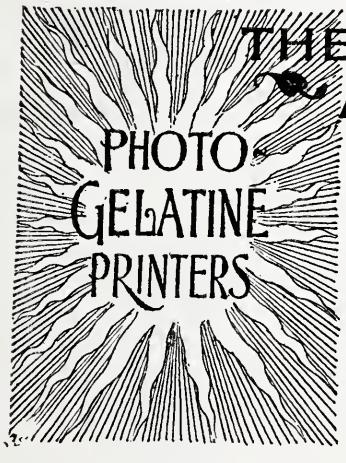
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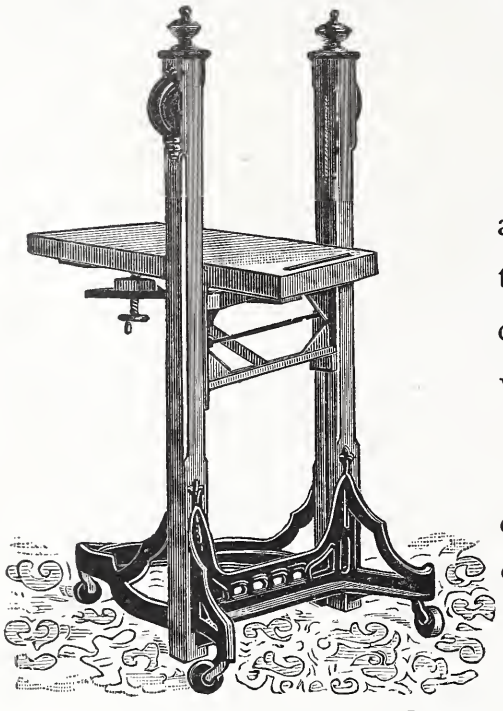
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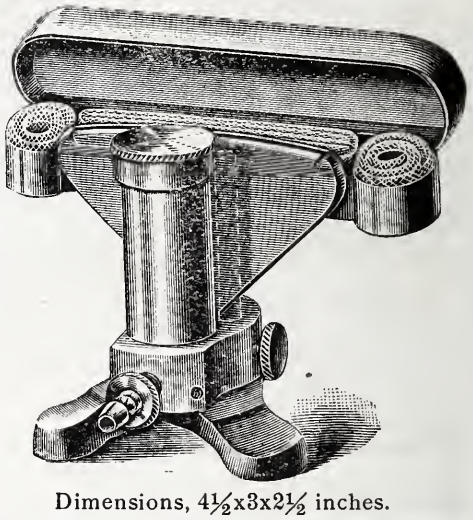
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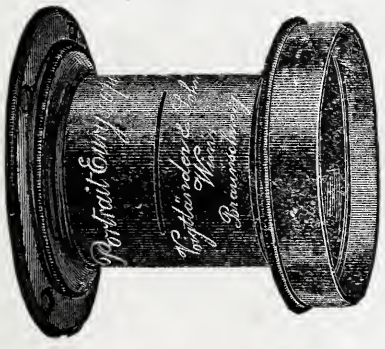
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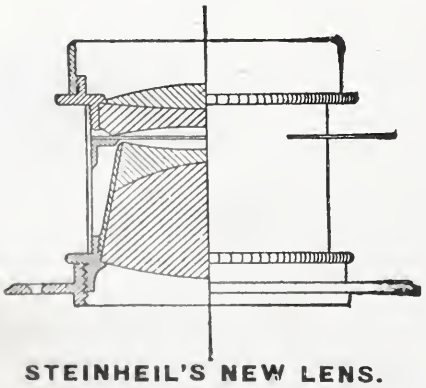
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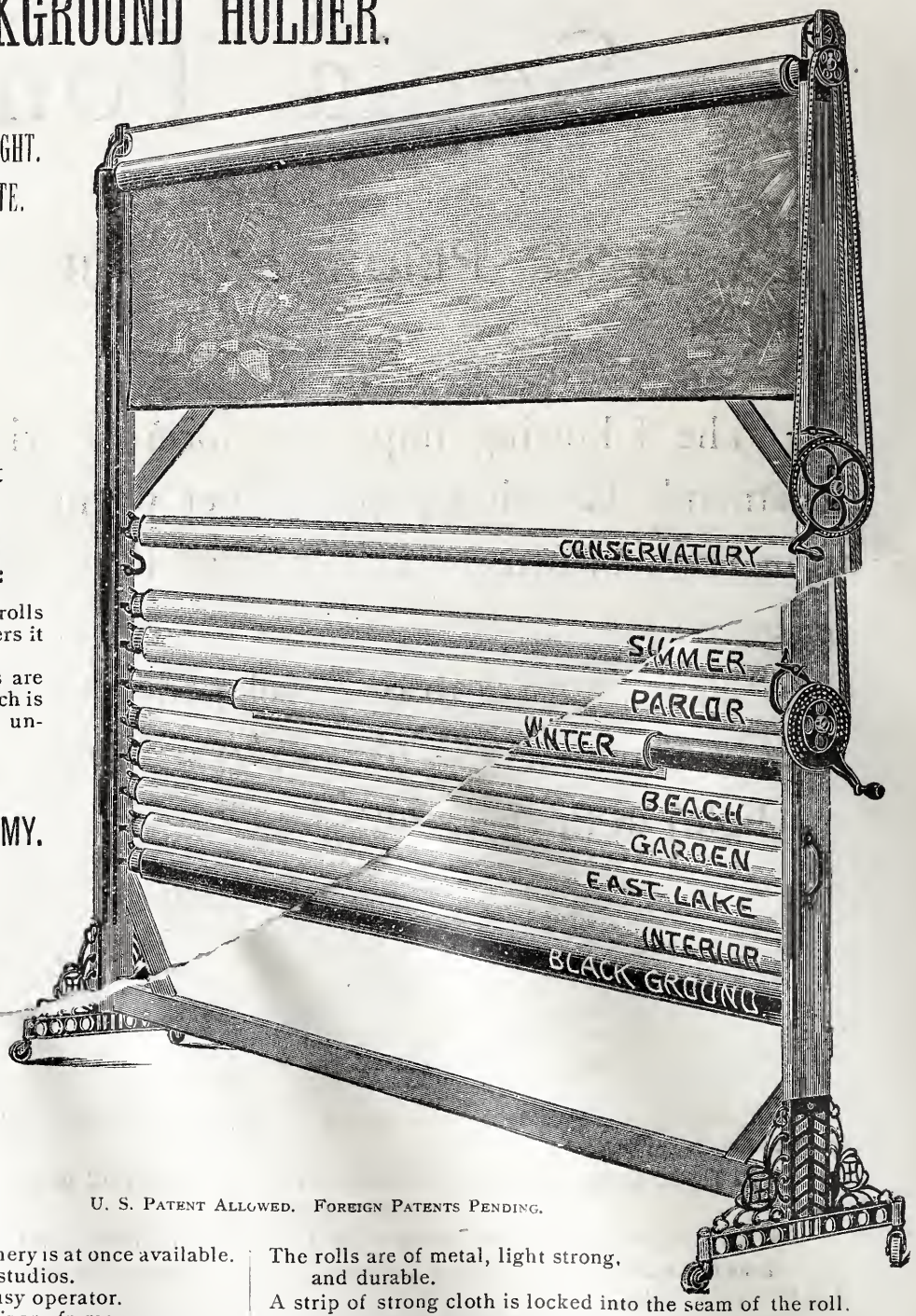
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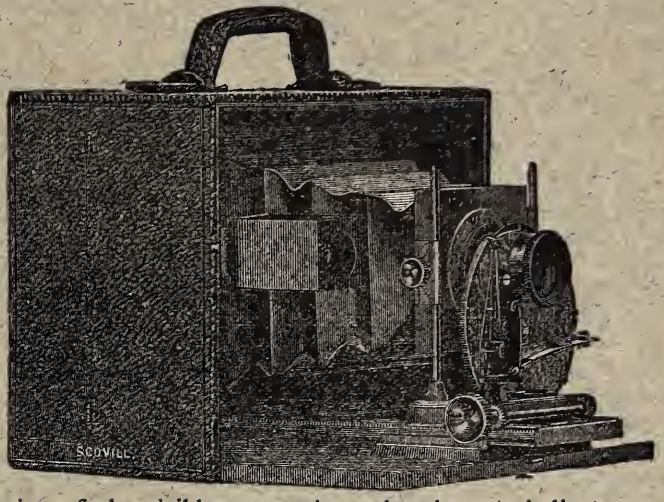
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And Photographic Times Almanac

FOR 1891

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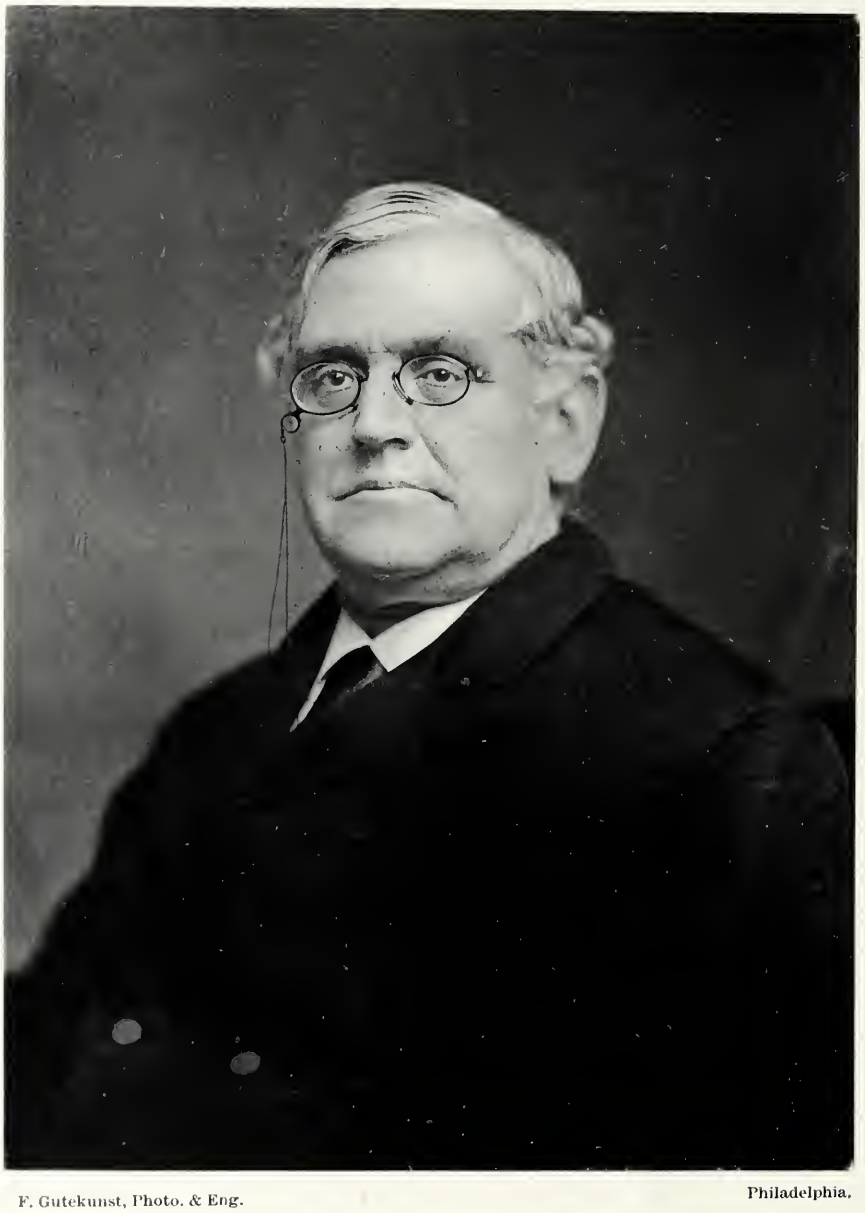
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BISHOP PHILLIPS BROOKS.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, NOVEMBER 6, 1891. No. 529.

BISHOP BROOKS.

WE take great pleasure in presenting our readers this week with so excellent a portrait of Bishop Phillips Brooks as adorns this number of THE PHOTOGRAPHIC TIMES. The negative was made by Mr. Gutekunst, a few years ago, and has never been reproduced for publication. It is considered a better likeness than more recent portraits, and will be especially appreciated by the extensive circle of admirers of Phillips Brooks from the fact that it is really a new portrait of him. We publish the portrait with the Bishop's knowledge and consent. "*I am quite willing that you should use the photograph as you desire*," he promptly writes in response to our request, and our readers are thereby permitted to see another portrait of an eminent American by an artist who may always be studied with profit.

Bishop Brooks is too widely known and admired to require any word of introduction. Such a word would be almost a presumption. He is undoubtedly the most prominent preacher America has produced since Henry Ward Beecher. But what is greater than prominence is the fact that wherever he is known he is respected; by whomsoever admired, beloved.

PHOTOGRAPHIC EXHIBITION AT THE AMERICAN INSTITUTE FAIR.

II.

IN August, 1881, the Photographers' Association of America, in convention assembled, exhibited in the Hall of the American Institute, for the first time in this country, bromide of silver gelatine emulsion plates and prints made from them. The exhibits of work made on these plates by Carbutt, of Philadelphia; Cramer and Norden and Scholten, of St. Louis, were greatly admired. A month later when the Annual Fair of the American Institute was opened, Mr. Theodore Gubelman, of Jersey City, exhibited work from gelatine dry plates also of a very high order, both large portraits and instantaneous marine views. George Rockwood and William Kurtz had previously adopted the new plates in their professional work; but, if our memory serves us, Mr. Gubelman was the first to exhibit the results. This was at a time when the gelatine plate was looked upon with a good deal of skepticism by most professionals. It remained for the amateurs to take it up with enthusiasm and make it popular.

Ten years have elapsed and the gelatine process has become well-nigh universal. It made possible the widespread adoption of photography as an amateur sport and recreation, and it has been the amateurs who have done most to promote the scientific interest of photography. The exhibition of photographs by members of the Society of Amateur Photographers of New York this year at the American Institute Fair is especially appropriate and significant. It is unquestionably the best representative exhibition of amateur work which has ever been held in this city. We propose to review for our readers the more notable exhibits, in order as they were observed by us at the Fair.

On entering the exhibition room we encounter first the display of Professor L. H. Laudy, of the School of Mines, Columbia College. These photographs are of strictly scientific nature, the only exhibit of its kind in the hall. It contains photomicrographic work on 8 x 10 plates. Diatoms, single and in groups; insects in their entirety and single parts, and a variety of other interesting subjects are brought to view. We notice one picture labeled "Zeiss." Shall we infer from this that the Professor uses the new apochromatic lens for his micrographic work?

Paul A. Meyrowitz has a very large frame, the

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center of which is occupied by an 8 x 10 picture of a Broncho and Cowboy. This is an excellent photograph, well printed on platinum paper. It is surrounded by thirty or more quarter size pictures of scenes in the far Southwest. The prints of these very fine negatives are in most cases wretchedly poor. They are on chloride of silver emulsion paper, over-toned with but few exceptions, and generally of that greenish black tone and yellowish white which we have had so often occasion to find fault with. Frame 175, by the same exhibitor, includes excellent marine views and splendid cloud effects. The prints in this frame are good without exception.

Charles Wager Hull's exhibit consist of more than forty numbers, in size 6½ x 8½ inches, landscapes, marines, interiors, cloud effects and groups, instantaneously taken in many instances. It is quite difficult to discriminate between these many beautiful pictures, but we are inclined to give preference to No. 86, a ferry-boat, No. 84, regatta, Nos. 80 and 83, schooners under full sail, as especially good, and we admired especially the cloud pictures 94, 95, 96. There is reality and truth in all of Mr. Hull's work.

Chas. Balliard.—No. 1, sleeping-room in country residence, a very fine interior. No. 2, model of the Parthenon, excellent reproduction. No. 3, group of old lady and grandchildren, well-arranged composition, might serve as a model to those attempting similar work.

E. S. Bennett shows interiors, mainly studios of artists like Dolph's, Chase's, Hartley's, and others, with a few portraits. These are all very sharp and prettily arranged, but not much can be said in favor of the single pictures. They are harsh and devoid of pleasing half-tones.

G. W. Wundram has a frame with twenty-four one-quarter size pictures of exquisite beauty, every individual being a gem in its own way. Printed on chloride of silver gelatine paper, all the details of the well-developed negatives are distinctly brought out, and a very fine warm tone enhances their value. The popular subjects, scenes in Central and Prospect Park, the Brooklyn Bridge, the streets of New York, seem ever attractive to the public.

Alfred Simpson's work is simply perfect. His photographs are superb from the technical as well as the artistic point of view, and as they all represent highly interesting subjects, they forcibly attract the attention of connoisseur and the general public. If there are any single pictures to which we give preference they are those of sheep, especially the enlarged bromide prints, which are quite equal to the reproductions by the renowned Verboeckhoven's.

H. Herbert Sidman, No. 201, has a very fine technical photograph, representing a New England Log Cabin. No. 204 is equally good, technically speaking, but no artist of brush or pencil would place sheep and sheerer in the position here represented. The large statues in Central Park are exceedingly well made.

E. Warrin.—From five pictures exhibited we notice No. 265, "Two Little Cousins," and No. 268 "An Unwilling Subject." The figures are too large for the size of plate, harsh from underexposure, and are not very nicely posed.

Eugen Sargent's three enlargements on bromide paper, can stand the severest criticism. They are excellent.

Louis B. Schram has but four pictures, but all of them are admirably well done. "A Shady Lane" is finely printed from an exceedingly beautiful negative. "Cows in Pasture," is good in arrangement, and as Mr. Schram has adherred in some instances to the old orthodox ferrous oxalate developer we can give to him much credit for having obtained such beautiful results with a developer almost banished from the dark-rooms of American amateurs.

Daniel Young has six frames, well-selected mountain views, and pictorial views on the beach, genres, instantaneously taken, and a few attempts in portraiture. With all our admiration for these beautiful negatives, the printing is far below mediocrity. The chloride of silver emulsion paper is much over-toned and the whites are of a yellowish hue. The prints are not mounted but merely tacked on by the corner, are curled up to some extent and reflect much light in consequence, and when looked at from a distance appear as much like tintypes as anything else.

Chas. A. Valadier shows some "Detective" snapshots. They are mostly under-exposed and are badly printed and mounted. No. 247 is an excellent enlargement of a dog, instantaneously taken.

E. H. Lincoln exhibits some magnificent photographs of fruit and flowers, grapes, labernum, digitalis, etc. We admired this exhibit at the combined exhibition last Spring, and can speak of it in terms of highest admiration.

Miss Emilie V. Clarkson's No. 17, "In Nature's Mirror," is of rare beauty; so is No. 19, "The Milkmaid," for which we could suggest a better title. No. 18, "Day Dreams," does not represent very well what the artist evidently intended to do. The figure is not well chosen, and is not appropriate to the idea. No. 20, "The Gamesters," is

chemically a very good photograph, and optically a good lesson on the proper use of the wide-angle lens.

A. Peebles Smith shows quite a variety of pictures printed from very nice negatives, especially those taken instantaneously, but we do not think much of his new printing process. The plain orthodox albumen film would have shown his negatives in a much better manner.

E. A. Harvey exhibits some Interiors of the Legislative Chambers of Melbourne, Australia. They are excellent photographs.

Hugo S. Mack makes one of the most meritorious exhibits in the hall, technically, chemically, and artistically considered. Landscapes in the Tyrol, Bohemia, and genres, taken mostly on Carbutt films, comprise the display.

But we shall continue this review in the following issue.

AN OMEGA PAPER TONER.

Mr. Thomas J. Bray, in a recent letter to the editor of this magazine writes:

"I have abandoned the toning and fixing bath combination recommended by the makers of the Omega paper, for the old-time borax toning bath, and a seperate fixing bath. I find the following very satisfactory.

Toning Bath.

Water	12 ounces
Sat. sol. borax	1 ounce
Chloride gold	1 grain

The above is ready to use as soon as made.

Fixing Bath.

Water	2 quarts
Hypo	4 to 5 ounces
Pulverized alum	¼ pound

"Print quite deep, wash in three changes of water, then tone to a purple or blue-black. As soon as they reach the color desired remove them to a tray of clean water, and immerse singly in the hypo bath, and let them remain therein twenty minutes. Keep them moving whilst fixing. When the prints are put in the fixing bath they turn a reddish color, but will return to their original color in a few minutes after fixing. Wash in running water for three hours or more."

Appreciation.—We wish to express our appreciation of the courtesy extended to our representative, while on a recent visit to Chicago, [by Mr. C. Gentile, editor of *The Eye*.

DEVELOPING INSTANTANEOUSLY EXPOSED PLATES.

Apropos the discussion on hand camera work recently started in this magazine, we reprint the directions which Professor W. Jerome Harrison gives in his series of articles on instantaneous photography in the *Amateur Photographer*, of London:

Correct Exposure.—Should the exposure have been fairly correct, it is probable that no sign of an image will be visible after the lapse of three or four minutes. Now strengthen the developer by adding ten minims more of the 10 per cent. solution of ammonia. Faint outlines of the brightest objects now appear. Repeat the dose of ammonia; more detail makes its appearance. After waiting another three minutes, add pyro solution 20 minims, ammonia 20 minims, and bromide 10 minims. It is quite possible that this may be sufficient to complete development; but if it is not, the last dose may be repeated once, twice, or even three or four times.

Under-Exposure.—With cases of under-exposure *patience* is an important factor. If no image appears after the second addition of ammonia to the developer, wait patiently for ten or fifteen minutes. Use a light-tight dish-cover and a dish-rocker, and go about some other work for half an hour or so. When the image does appear, strengthen the developer very gradually, and keep the quantity of pyro down. The thing to be dreaded is a hard black and white picture, void of detail in the shadows. It is sometimes useful to remove the negative from the developing dish, rinse it and leave it to soak for ten minutes in a very weak solution of ammonia—say 1 ounce of the 10 per cent. solution diluted with 9 ounces of water. It should then be returned to the developing dish, and development completed.

But in most cases of *considerable* under-exposure, it is best, unless there be a reason which make "some sort of a picture" specially desirable, to clean the film off and take another negative.

Local Development.—When parts of the negative (the dark parts or shadows of the original objects) remain obstinately white, it is a good plan to gently rub each finger upon them in turn; the warmth of the skin assists development. If this fails, the negative should be removed from the dish, held close to the mouth, and breathed upon forcibly, or a small tube of paper may be used to convey the warm breath to the desired spot. In addition to these plans, it is of great use to gently *brush* the under-exposed parts with the weak solution of ammonia, which it has already been stated should be kept upon the developing table for that purpose. Of course, the negative should be immedtately returned to the develo, er after any of these methods has been tried. For over-exposure, the weak bromide solution should be applied with a brush to the parts which are darkening too quickly, as the distant mountain in a landscape, a window in an interior, etc.

"*Mixed with Brains.*"—There has lately been a disposition on the part of some workers—scientists and artists, not photographers proper—to consider development as an automatic operation, and to urge that "everything depends upon a correct exposure." But it is a matter of every-day experience that of two plates exposed upon

the same subject, at the same time and under precisely similar conditions, one may (by the skill of the operator) be made to yield a satisfactory negative, capable of producing a good print; while the other (by the *want of skill* of operator No. 2) shall be one of those parodies on our art which are the scorn even of the critics. "Practice makes perfect," but not mechentcal practice; every negative developed ought to add to the skill of the operator. During the first year of one's work, during the development of one's first two or three hundred negatives, it is probable that any good results which may accrue will be rather in spite of our efforts than because of them.

But surely everyone expects to serve an apprenticeship to photography, and to "pay his footing" in the form of spoilt plates. Dry plates are cheap—perhaps too cheap—so don't grudge the expenditure of those which you "throw away" while learning. They are not wasted if they have taught you something. We agree entirely with Dr. Emerson's advice to develop as soon as possible after making the exposure and while the scene itself is fresh in the mind's eye. Then endeavor, by using your developer like an artist does his brushes and paints, to make the negative represent as truly as possible that which you saw in nature.

SOME TONING BATHS FOR ALBUMEN PRINTS.

BATH USED BY NATHAN WOLFSBRUCK, CHIEF PRINTER WITH FALK.

Water 60 to 80 ounces, make slightly slippery to the feeling with sal soda, saturated solution borax, two teaspoonful chloride of gold sufficient to tone, from 6 to 8 minutes; add more when necessary, keep at uniform heat by recepticle holding warm water underneath.

BATH USED BY L. E. GOTTHEIL, COURT PHOTOGRAPHER AT KÖNIGSBURG, PRUSSIA.

Distilled water	10 ounces
Tungstate of soda	45 grains
Chloride of gold	1½ grains

Proportion for fixing bath. Water 10 ounces, hyposulphite of soda 1 ounce.

Transfer to tepid solution. Water 8 quarts. Salt 1 pound.

BATH FOR BLACK TONES.

Water	60 ounces
Acetate soda	120 grains
Bicarb.	60 grains
Chloride of gold	7½ grains

Add more chloride of gold as occasion requires.

To restrain action add 3 to 5 drops saturated solution cupric sulphate.

For velvety black tone, add 5 to 10 drops saturated chloride lime solution only at long intervals if bath is used over and over again.

ANOTHER BATH.

1 grain solution of chloride gold	5 ounces
43-grain solution of chloride potass.	10 ounces

Neutralize with chalk, let settle or filter, and increase quantity to 60 ounces, add gold previously neutralized as toning continues, half to one ounce of bicarbonate of soda, requires to be added to fixing bath. Where this toning bath is used, also print *very little* darker than wished-for when finished, as this bath does not bleach. Neither use acetic acid or salt in washing waters before toning.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 540.)

CHAPTER VIII.

CLASSIFICATION OF REDUCING PROCESSES.*

The various reducers whose action we have now described, may be arranged in six classes: *First*—A change in the *color* of the film or deposit, whereby it is made more transparent to the chemical rays. Example—(*a*) Clearing of stains, etc., from film by action of mixture of hydrochloric acid and alum. (*b*) Bleaching of film by bichloride of mercury.

Second—A direct solution of a portion of the silver embedded in the gelatine film, and constituting the negative. Example.—(*a*) By one-bleach, and other hypochlorites. (These have a chemical action also).

Third—A chemical change of a portion of the deposit into a compound, which may afterwards be dissolved in a proper solvent. Example.—Most reducing processes belong to this class, as ferric chloride, mercuric chloride, ferridcyanide of potassium, etc. These must be followed by the application of hypo to remove the silver salts which are formed.

Fourth.—A solution or loosening of the gelatine film itself. Example.—The action of bleaching-powder and other hyposulphites. This method is not applicable to collodion negatives.

Fifth.—A rubbing or cutting down of the dry gelatine film, as by the use of alcohol applied on wash-leather, etc.

To these may be added: *Sixth.*—Any method of working upon the glass *back* of the negative, as Burton's reducer, or by stretching a piece of tissue-paper over the back and then working upon it with lead-pencil or the stump, by which extreme contrasts are reduced.

* According to Mr. W. E. Debenham.

Maxims for Reducing.

1. If the negative is varnished, the varnish must be removed before reducing, by means of warm methylated spirit, aided by gentle friction with a pad of cotton-wool.

2. The negative must be thoroughly well washed to free it from hypo before reduction is attempted (except in the special cases noted).

3. Keep the dish in motion while the reducing solution is upon the negative, or the action may be unequal.

4. For negatives which may be fixed in an *acid* fixing-bath, the "acid ferric oxalate" (durable reducer) of Belitzki should be used.

5. In other cases try *first* the reducing solution of red prussiate of potash followed by hypo (Farmer's reducer).

6. Remove the negative from the reducing solution while yet a *little* too dense. It will lose slightly in washing and drying.

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(Leader.)—Reducing by Chloride of Lime (1887), p. 402.

Sherman, W. H.—Reducing Prints with Alkaline Ferridcyanide (1888), p. 55.

(Leader.)—Reducing Over-Printed Proofs (1890), p. 721.

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W. Jerome Harrison.

(*To be continued.*)

A TRIP THROUGH THE YELLOWSTONE NATIONAL PARK.

IN a trip through this wonderland the important matter of weight and size must enter into consideration in the selection of a photographic outfit. Distances are great, and weight must be reduced to a minimum, as the camera must be carried by the tourist, and no matter how small and light it may be, it gets to be very heavy after having been carried about all day over the hot and steaming substance called ground, but which is not ground at all, but lime, hot to the feet, and dazzlingly white under the fierce rays of the sun. A trunk can be carried to the Mammoth Hot Springs Hotel, but from that point on the traveler is restricted to a "grip," and as this must hold all that he will need for nearly a week, it will be seen that there is little spare room for a very elaborate outfit for picture making. The train is left at Cinnibar, and a six-horse coach takes the traveler the eight miles which lie between the station and the Mammoth Hot Springs Hotel, where the first stop is made. Here the tourist finds material close at hand for the camera, and usually begins work at once. Many exposures are made on the wonderful formations, the resultant negatives being almost entirely worthless. The formation of the hot springs results from the deposit of lime, with which the water is strongly impregnated, which deposit is constantly building up the wonderful terraces which contain the springs. So strongly impregnated with lime are the waters of the many springs that old shoes, hats, bottles, horse shoes, or any other article placed in them soon become covered or encrusted with lime, and upon being dried turn a dazzling white. Many tourists carry away souvenirs of the springs made in this manner. The formations are best photographed in the early morning or late afternoon, as in the middle of the day it is almost impossible to get a negative with any contrast. If one is compelled to work in the middle of the day, he should proceed in the same manner as he would for a sea-scape, and the chances are that even then the negative would be very much over-timed. At the base of the formation stands old "Liberty Cap," an extinct geyser, said to be fast crumbling away. It is between 50 and 60 feet high, and two plates can be used to advantage, one looking toward the formation, and the other looking toward the hotel from the top of the formation. Perhaps I had better explain that the term "formation" is used all through the park to designate the deposits of lime of whatever nature they may be, excepting of course the geysers themselves. It is perhaps more particularly used to designate the great terraces which the Mammoth Hot Springs have built up about themselves, and which cover, if I remember correctly, forty acres.

Leaving the Mammoth Hot Springs the next stopping place will be the "Lower Geyser Basin," and at the outset of the trip to this interesting place we pass through the "Golden Gate," a narrow gorge with towering rocks on either side of most wonderful colors, the road in one place being built upon a wooden trestle upon the face of the cliff. Here a stop can be made and exposures made from each end of the bridge. Orthochromatic plates won't give the orange, Indian red, brown and purple colors of the rocks, but they might be an improvement over the ordinary plate. In order to get any idea of the colors without having seen it personally, one would need to have before him a photograph in water colors. Later on, "Obsidian Cliff" demands attention. This is a huge mountain of glass, the road running at its base, and from the debris one is allowed to select a specimen. The manner of making the road was a serious question, and the solution was novel. Great fires were built upon the glass and allowed to burn for a long time, and then water was thrown up on the heated surface, causing the glass to break into small pieces which were then shoveled away, and the process repeated again and again until the road bed was level and complete. As the wheels go over this road they make a peculiar grinding noise, and the sharp particles of glass flash in the sun as they fly from under the feet of the horses.

The "Mammoth Paint Pot" is exceedingly interesting, but hard to photograph because enveloped in steam. This is a mud spring, some fifty feet across, surrounded by a ridge from three to four feet high. Looking in, one sees a thick pasty mass slowly boiling and sputtering, looking as much like boiling hasty pudding as anything I could think of. On one side the material is somewhat thicker than elsewhere, and as the bubbles rise to the surface and burst they form the most beautiful roses, lilies and other flowers. These remain a few seconds,

until dispelled by others which are constantly forming. This particular spot is called "Rose Corner." All about this mammoth paint pot are smaller paint pots, some red, some black, some yellow, and others blue, but they boil side by side, not more than two or three feet apart at most, and never mix colors.

It is in the "Upper Basin," so called, however, that the largest and most active geysers are found. We were driving along, looking from side to side at the wonderful sights, when suddenly the driver exclaimed "There's Old Faithful." We looked ahead and saw a great column of water and steam shooting upward. The camera was unlimbered, but we were too far away to get it, and long before we got up to it, it had ceased its operation, and we had to wait 65 minutes before it went off again. This geyser is well named Old Faithful, for it is the only one that can be depended upon to give its exhibition at regular intervals, and almost always on time. Sometimes it runs over a few minutes, but when it does this it makes up by playing higher than usual. It is in operation four minutes, and can best be photographed on a cloudy day. The column of hot water and steam rising to a height of 150 feet against a bright blue sky defies the photographer. It is impossible to get any contrast or background unless it happens to be cloudy, and then the column stands out clear and sharp. Out of four exposures I got nothing satisfactory. One can easily tell when it is about to begin operations by standing at the crater and listening to the awful noises made by the mighty volume of water as it pulsates back and forth. For a few seconds it will be as silent as though the geyser were extinct, and then way off down somewhere in the depths there is a faint whisper, a sigh, a rapidly growing rush and roar, sounding as though millions of tons of water and great volumes of steam were being forced with awful power through crooked channels and long tunnels, coming nearer, seething and boiling upward, and ending in a dull explosion, and then dying away to utter silence. In a few seconds this is repeated. Again the wild rush as the mass surges upward, again the explosion and silence, but every time the awful sounds come nearer and nearer, the explosions are louder, the reverberations echo longer, and the period of silence is shorter, until, at the end of 65 minutes, the pent-up forces burst forth and a column of boiling water about 6 feet by $2\frac{1}{2}$ feet in diameter is thrown upward 150 to 200 feet. It is hard to resist the temptation to waste plates on this grand and awful spectacle, but there are other geysers demanding attention. The Lion, Bee Hive, Giantess, Monarch, Castle, and many others, but all of them present great difficulties. Most of them are enveloped in steam; all of them are white, or nearly so; the ground, or substance that we walk upon, is white, and there being no background, unless one can have clouds on order, the negatives made in the brilliant light of midsummer are apt to be very unsatisfactory from lack of contrast. There is nothing to do but diaphragm way down, set the shutter as you would for a sea-scape, and let go.

It is a great pity that one cannot photograph the colors just as they appear in some of the springs. There are many springs of remarkable beauty and marvelous in color, but two of them in particular deserve more than a passing mention. They are the "Gem" and the "Morning Glory." The latter is shaped just like a huge morning glory. Standing upon the edge of the spring one looks down into the depths to the great black hole which leads down no one knows where. This center is black as night. The interior of the spring is composed of lime, of a slaty blue color, and corrugated and fluted in most wonderful fashion. Around the crater at the greatest depth the water is a very dark blue, and from dark blue it shades up lighter and lighter as the water grows shallower, until at the top, where it is only an inch or two in depth, it is a beautiful light dove color. Around the edge of the spring there is a ridge some two or three inches high, and there is just iron enough in the water to color this rim into bright red, orange, brown and purple, the whole taken together making a mammoth morning glory. The "Gem" is similar to the "Morning Glory," except that the crater is in the center instead of at one side.

The Grand Cañon of the Yellowstone will require many plates. Indeed, one could find something new there every day in the year. The cañon is 1,500 feet deep, the sides almost straight walls, and all highly colored—brown, red, Indian red, yellow and orange predominating. Great isolated obelisks, like huge chimneys, rise to a great height on every side, their inaccessible tops untouched except by the feet of the eagles whose nests are seen upon many of them. These nests cover the entire top in some cases, and from this dizzy height the young eagles are plunged when shaken out of the parent nest and forced to depend upon their own wings. Down at the bottom of the gorge, looking like a mere green thread, the Yellowstone River boils and rushes over the huge bowlders that choke the channel, but no intimation of its struggle ascends to the great height from which it is viewed. Apparently

it runs silently through its crooked channel, but one can see it seethe and boil, and can imagine the wild, rushing noise that would be heard if one could approach near enough. From up the stream the Yellowstone Falls send their ceaseless thunders down the gorge. These falls—the upper and the lower—are easily accessible, and a few plates must be reserved for them. The lower fall is reached from a path leading down through the woods for something over half a mile, and one can approach the very edge of the lower fall and stand upon the rock forming the brink from which the water takes its plunge into the abyss below. It is impossible to visit the bottom of this fall, but the view from the top is grand. One can put his hand into the stream where it breaks for the great plunge, and looking at the vast body of water as it rushes down to the brink, leaps out, breaks and falls in great lumps, it gives a feeling of dread, as though the mighty force of the water must tear away the solid rock upon which you are standing and hurl you over into space. The water at the brink breaks slowly, apparently, and looks like melted glass, or some substance thicker than water, and goes whirling down in great chunks.

At night, with the moon shining down into the depths of the great cañon, lighting up the variegated rocks in an uncertain fashion, it is unspeakably lonely. Going down the path through the woods you hear the harsh cry of some night bird, and strange noises from the depths of the forest, whisperings and sighings. Nearer the falls the dull roar of the cataract grows louder, and standing upon the brink, your ears filled with the awful rush and roar, you look down this great gorge in fear and trembling. From the abyss below rises an impenetrable mist. The great obelisks cast fantastic shadows. Everything is on such a gigantic scale that man feels his insignificance, and one is filled with a dreadful expectancy of impending evil. Home seems very far away, and on leaving you hasten up the path to the high ground and the hotel with a sigh of relief that you are safe again.

W. J. Hickmott.

A Remarkable Invention."—A remarkable invention has just been announced in Vienna. It is a complete miniature aparatus for taking photographs in a rifle, the apparatus closing itself every time a shot is fired.

The photograph will show the object aimed at in a circular picture in the centre of which is the shot.

A fallen target or game, and even a poacher might be photographed in this way, and then show exactly the spot which had been hit.

PHOTOGRAPHY'S VALUE AS AN HISTORIC RECORD.

[A Communication to the Birkenhead Photographic Society.]

HITHERTO a negative has been considered permanent with an ordinary washing of half an hour, and so far may be fairly put down as a valuable historic record. The quality of a negative and its density for printing purposes is, I admit, only learned by experience; but, invariably speaking, the half of the process is a pleasure which is greatly enhanced by the process of development.

To see the picture developing like an exhalation, out of chaos into light, is as magic in its effect as it is pleasing to the eye. It is this captivating feature of art-science which renders it so popular.

The next phase of photography is the printing of the negative, and here he has to meet with endless trouble; and unless he has a good stock of patience and perseverance he will throw it up in disgust, which many too frequently do. Our first duty it to guide them to such processes as time has proved really permanent, such as carbon. This includes Woodbury, which is of a similar nature, as shown you in my first lecture to have stood the test of twenty-seven years without the slightest evidence of deterioration.

The next on the list is platinotype, which is admitted on all hands as thoroughly permanent, and also the easiest in manipulation of all the processes. Printing transparency and lantern slides may also be classed within the range of permanence.

My fifty years' experience has led me to the conclusion that no process *printed on paper* is safely permanent which employs hyposulphite of soda as a fixing agent (a good servant, but a bad master).

I showed instances in my last lecture that this was not always the case, nevertheless it is the rule.

Some years ago I called attention to the fact that if albumenized paper were first coated with casine, in course of fixing after printing the latter would separate from the paper and leave an impression on the albumen, which I transferred to opal, and now show you samples thirty-five years old, which I admit show signs of decay; consesequently I am compelled to fall back on my original conclusion. If you want permanent photographs, you must look to carbon, Woodburytype, and platinotype processes for the solution of the question.

James Alexander Forrest

Notes and News.

Marriage Bells.—Mr. and Mrs. Joseph Trounstine announce the marriage of their daughter, Mrs. Blanche Bernheimer, to Mr. Aaron Prince, the well-known photographic merchant of Cincinnati, which occurred on Tuesday, October 27th.

The Capital Camera Club, of Washington, D. C., held an exhibition of pictures—the work of members of the club, at the club rooms, 401 Seventh Street, N. W., opening Thursday, October 29th, and closing October 31st 1891.

The Czar, who has a horror of photographers, was greatly incensed a short time ago at a zealous amateur who undertook to catch him with a snap-shot. It isn't shots from hand cameras, however, which he has most to fear.

Half the Edition already Sold.—Of the first edition of 16,000 copies of the "American Annual of Photography and Photographic Times Almanac for 1892" over 8,000 have already been sold and the orders continue to rapidly come in.

Lantern-Slides.—A selection from Mr. R. E. M. Bain's excellent collection of marine and foreign views were thrown on the screen at the Society of Amateur Photographers of New York, Friday evening, October 30th. Some work by the Boston Camera Club was also exhibited. Mr. Bain's slides were specially admired.

Our next illustration will be an appropriate one, entitled, "November Woods," by W. G. Todd, of St. Louis. Mr. Todd is a member of the Mound City Engraving Co., of that city, which supplied us with the excellent illustration entitled "Fast Friends," which embellished our Convention number.

Art at the World's Fair.—Chief Ives, of the Art Department of the Columbian World's Fair, now in Europe, writes most encouragingly concerning the prospects of the art exhibit of the Exposition. He has conferred with artists and art societies in many of the principal cities of Europe, and has found them greatly interested in the Exposition, and anxious to send paintings and other art productions for exhibition. He reports his success much greater than he anticipated.

Snap-Shots at the Queen.—The Queen has ordered her attendants to take greater precautions against the access of chance visitors and spectators to the neighborhood of her Scottish residence. She drives about Balmoral freely, seeing her tenants and inspecting her property, and she complains of tourists taking snap-shots at her with their cameras.

Some of the specimens of the work of these noisome intruders which have been found in the cottages of the Queen have provoked considerable laughter, and at the same time some resentment, as they are positive caricatures, and have taken Her Majesty unawares and with anything but artistic results.

W. J. Stillman has a paper on "Journalism and Literature," in the *Atlantic Monthly* for October, which will be read with disfavor by the journals, and by the litérateur with delight. He says: "It is truly a grave question for the young man who desires to follow literature and must work for his daily bread how he shall pay his way. I might say, with Dr. Johnson, that 'I do not see the necessity;' and in fact the greater, far greater part of those who attempt it do not justify the experiment. But I will suppose that the individual in any one case is justified in devoting his life and all its energies to letters; that his calling is irresistible, or at least so strong that he is willing to do all but starve and freeze to be able to follow it. Even then, I say, with all the energy of a life's experience put into my words, and a knowledge of every honorable paase of journalism to give them weight, Do not go on a daily journal unless the literature of a day's permanence satisfies your ambition. Now and then, with the possible frequency of being struck by lightning, you may, as a special correspondent, find a noble cause for which you may nobly give your whole soul—once it has happened to me; but even this is not literature. Better teach school or take to farming, be a blacksmith or a shoemaker (and no trade has furnished more thinkers than that of the shoemaker), and give your leisure to the study you require. Read and digest, get Emerson by heart, carry Bacon's essays in your pocket and read them when you have to be idle for a moment, earn your daily wages in absolute independence of thought and speech, but never subject yourself to the indignities of reporterism, the waste of life of the special correspondent, or the abdication of freedom of research and individuality of the staff writer, to say nothing of the passions and perversions of partisan politics.

"That now and then the genius of a man survives all these and escapes above them is not a reason for voluntarily exposing ourselves to the risks of the encounter: and who can tell us how much of the charm of the highest art those successful ones have lost in the experience? For what we get by culture is art, be it on canvas or in letters. Study, fine distinction, the perfection of form, the fittest phrase, the *labor limæ* and the purgation from immaterialities of ornament or fact, and the putting of what we ought to say in the purest, simplest, and permanent form—these are what our literature must have, and these are not qualities to be cultivated on the daily press. Of no pursuit can it be said more justly than of literature, that "culture corrects the theory of success."

Stereoscopic photography is also reviving in Chicago as well as the daguerreotype, to which we referred in a preceding issue. One of the oldest photographers of that city is devoting a good deal of attention now to stereoscopic work.

The Sea's Contribution to Photography.—A Russian photographer has asked for a patent from the German Government for the use of agar-agar, a sea weed, as a substitute for gelatine and albumen for photographic manipulations. While this material has been previously proposed for this purpose, the results were never satisfactory, but the present invention overcomes many of the former difficulties, and gives a material that is reported to be eminently satisfactory

HOW TO DETERMINE CORRECT EXPOSURE.

WE have received so many inquiries as to time of exposure that we reprint Professor Burton's Table of Comparative Exposures, as given in THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC:

Apertures Calculated on the Standard System of the Photographic Society.	Sea and Sky.	Open Landscape.	Landscape with Heavy Foliage in Foreground.	Under Trees, up to		Fairly Lighted Interiors.		Badly Lighted Interiors, up to		Portraits in Bright Diffused Light Out of Doors.	Portraits in Good Studio Light.		Portraits in Ordinary Room.	
				mins.	secs.	mins.	secs.	hrs	mins.		mins.	secs.	mins.	secs.
No. 1, or $\frac{f}{4}$	$\frac{1}{160}$ sec.	$\frac{1}{80}$ sec.	$\frac{1}{8}$ sec	0	10	0	10	0	2	$\frac{1}{6}$ sec.	0	1	0	4
No. 2, or $\frac{f}{5.657}$	$\frac{1}{80}$ sec.	$\frac{1}{25}$ sec.	$\frac{1}{4}$ sec.	0	20	0	20	0	4	$\frac{1}{3}$ sec.	0	2	0	8
No. 4, or $\frac{f}{8}$	$\frac{1}{40}$ sec.	$\frac{1}{12}$ sec.	$\frac{1}{2}$ sec.	0	40	0	40	0	8	$\frac{2}{3}$ sec.	0	4	0	16
No. 8, or $\frac{f}{11.314}$	$\frac{1}{20}$ sec.	$\frac{1}{6}$ sec.	1 sec.	1	20	1	20	0	16	$1\frac{1}{3}$ sec.	0	8	0	32
No. 16, or $\frac{f}{16}$	$\frac{1}{10}$ sec.	$\frac{1}{8}$ sec.	2 secs.	2	40	2	80	0	32	$2\frac{2}{3}$ secs.	0	16	1	4
No. 32, or $\frac{f}{22.627}$	$\frac{1}{5}$ sec.	$\frac{2}{3}$ sec.	4 secs.	5	20	5	20	1	4	$5\frac{1}{3}$ secs.	0	32	2	8
No. 64, or $\frac{f}{32}$	$\frac{2}{5}$ sec.	$1\frac{1}{3}$ sec.	8 secs.	10	40	10	40	2	8	$10\frac{2}{3}$ secs.	1	4	4	16
No. 128, or $\frac{f}{45.255}$	$\frac{4}{5}$ sec.	$2\frac{2}{3}$ secs.	16 secs.	21	20	21	20	4	16	21 secs.	2	8	8	32
No. 256, or $\frac{f}{64}$	$1\frac{3}{5}$ sec.	$5\frac{1}{3}$ secs.	32 secs.	42	40	42	40	8	32	42 secs.	4	16	17	4

WHAT TO DO WITH UNDER-EXPOSED NEGATIVES.

WALTER E. WOODBURY, in the (London) *Amateur Photographer* says: "I am not going to suppose that this idea is a new one by any means, but I believe it is one that a large number of amateurs are still ignorant of. There are few amateurs who can who have thoroughly mastered the question of exposure, and the majority of their negatives are either under or over-exposed. Now with an over-exposed plate we can often get a passable negative by suitable treatment, but with an under-exposed plate the case is usually a hopeless one, and the negative is usually placed aside to be thrown into the dust-bin. Before taking such a rash proceeding, however, let us pause and think. An under-exposed negative is useless as a negative—that is decided upon—but can it not be made to serve as a positive? Nothing simpler than to try. Well wash it, and immerse in a saturated solution of bichloride of mercury. Here allow it to remain until it is bleached quite white. The next operation is to well wash and dry. By placing a piece of black cloth or paper behind, we have a perfect positive, very soft and delicate.

"The best method of finishing off is to attach a piece of black cloth to the film side by glueing the corners; the plate can then be framed or mounted behind a cut-out mount. If the bichloride of mercury is allowed to act sufficiently deep, either side can be used. Of course, the picture is seen correctly by looking through the plain-glass side, although the best effect is usually got from the other."

THE ABOLITION OF "HYPO."

ONE of the chief triumphs of the beautiful platinum process, says the editor of the *British Journal of Photography*, is clearly attributable to the circumstance that so comparatively harmless and innocuous a body as water, slightly acidulated, it is true, is the sole fixing agent required; and for a similar but not identical reason we anticipate that a large measure of favor awaits the recently introduced kallitype process. Any system of printing which obviates the employment of hypo as a solvent of the unaltered portions of the picture has a strong argument in its favor. It is certain that prints which are subjected to hypo fixation often carry the germs of their own disintegration in a double sense, as it is a moot point which of the two evils is the earlier to assert itself in the fading of the picture, imperfect fixation or the presence of hypo due to insufficient washing.

It is rather late in the day for us to discuss the various dangers involved in an unintelligent use of (photographically considered) so dangerous a componnd as hypo. They are perfectly well known to most, if not all, of our readers. Many attempts have from time to time been made to provide substitutes for it, which shall as readily dissolve the silver salts as—to take a case at random—water does the persalts of iron, but so far without success. Had the experimentalists succeeded in this object, we have no hesitation in saying that the platinum, developed bromide, and kallitype processes would have had a far harder battle to fight than has been the case, although the contest for supremacy has in all conscience been severe enough.

Mr. J. A. Forrest probably echoes the sentiments of vast numbers of workers with regard to the imminent risks of fugacity involved in the employment of hypo as a fixing agent for prints. "My fifty years of experience," says Mr. Forrest, "has led me to the conclusion that no process of printing on paper is safely permanent which employs hyposulphite of soda as a fixing agent." Practical testimony of this nature weighs down a large amount of theory. It is beside the mark to argue that properly fixed and washed silver prints are as permanent as it is possible to get them; the incontrovertable fact remains that large numbers of prints turned out are imperfectly fixed and insufficiently washed, which arises not so much from the want of skill on the part of the operator as from the inherent difficulty of telling when fixation and washing are sufficient. If we contrast the albumen-silver system of printing with the platinotype processes, we shall remark an enormous disparity in the simplicity of the respective fixing methods, which, of course, tells vastly in favor of the latter from every single point of view it is considered.

For these and many other perfectly well-known reasons, then, we welcome any experiments which aim at the provision of printing processes that do not involve hypo fixation, and this is why we have given formulas for two such processes in the hope of directing attention to the chief point at stake. Beautiful as are some of the existing printing processes which exhibit such a formidable rivalry to albumen-silver, they are not, we believe, destined to altogether oust the latter process from the photographer's formulary. Take it all in all, there is a surprising amount of vitality in the "old dog" yet. It is because the *real* universal printing process has still to be discovered—a process capable of attaining such a pitch of popularity as albumen once—and not so very long ago—enjoyed? We shall not presume to answer our own question, but we will close by laying it down as a guide for any experimentalist thirsting for fame (and fortune) that the fixing agent for the process of the future must be no more dangerous a chemical compound than is ordinary water.

OUTING OF THE NEW ORLEANS CAMERA CLUB.

THEY started out at nine o'clock in the morning with the deliberate and avowed purpose of stealing every antiquity and place of interest in this city, and they took four coaches along for the purpose of conveying their booty to their den. It was a noteworthy fact that the depredations of these photographical Bedouins met with no opposition or remonstrance from the owners of the places stolen. Despite the fact that buildings, courtyards, churches, cemeteries and even grain elevators were bodily stolen, wrapped up in paper and taken home, their owners or trustees said not a word. Perhaps this was owing to the fact that, although the Camera Club took everything there was to be taken and carried it off, the things still remained where they were before. At all events everybody seemed anxious to be pillaged, and put every facility in the way of the Camera Club to enable it to accomplish its purpose.

The last ghastly mists of morning slowly melting into the blue vacancy of a sunny sky still hung like a nimbus over the gray steeple of the Jesuit priory when four coaches draw up in front of the Club's quarters, on Carondelet Street. Into these coaches the Camera Clubbers entered in the following parties:

First Party—S. L. Mitchell, S. F. Lewis, Mr. and Miss Rueff, G. P. Freret and T. W. Castleman.

Second Party—R. H. Palfrey, G. P. Bouvier, B. Black, C. Delery, John A. Streck, C. F. Hodges and Chas. J. Fulda.

Third Party—Mr. Duquesnay, B. F. Warner, H. Carpenter, P. E. Carriere, R. S. Charles, Jr., and E. L. Pinac.

Fourth Party—Dr. O. Salomon, Hon. B. C. Shields, Placide Reynes, James Moulton, W. Gowland, G. N. Maxent and U. Marinoni, Jr.

One party went to the Jackson Barracks, a second went to Southport, another to the Fair Grounds, and a fourth to the Metairie and Greenwood cemetaries.

The party that went to the Barricks secured pictures of the old Jackson Barracks, of the slaughter-house, views along the yellow Mississippi, winding wearily away as if disgusted with the wickedness of men, and of New Orleans men in particular—pictures of points in and about Chalmette—of deserted sugar-houses, of rusting iron-work and of groves of oak. The Southport party took pictures of stately old plantation houses and cozy negro cabins, of the prize fighters' quarters, the gardens, the long stretch of treeless avenue, of lazy steamboats staggering up stream, of lazier steamboats lounging down stream, of plantation churches, of waving fields of cane and of corn, and of ancient churches just showing above the blue of distant trees far off up the river. The Fair Grounds' party shot the race course, bagged the fair buildings, and stole away the dreamy quietness of many a quaint Creole home, of many a crumbling ruin of "old Creole days" antiquity, and of many a sleeping chapel buried away among tombs, sunflowers and the shadows of flex trees.

The cemeteries' party captured monuments and mausoleums, mostly graves and shaded walks that led to places ever so quiet. They pictured the Firemen's monument, the Confederate monument, and monuments and monuments as many as Solomen's wives.

It was 5 o'clock when the weary members of the Camera Club found themselves sated with antiquities, with ruins, with monuments and with coaches. With the promptness and decision which characterizes these energetic photographers they immediately stopped taking pictures, boarded their coaches and repaired with all speed to their banquet on St. Charles Street, where was spread a board of food and wines which would have made Pickwick and Winkle doubt seriously whether matters epicurean have not taken an onward stride since the days of their savory chops and puddings, bidding fair to relegate those appetizing and toothsome viands to the shades where dwell the things whose records are beaten. There were lots of speeches, lots of laughter, lots of talk, and lots of fun—nobody wept once, nobody looked sullen once, nobody even refrained from looking happy and hungry and smiling all the time. No one tried to make a serious speech; it would not have been *au fait*.

It requires no profundity to assert with conviction that members of the Camera Club slept soundly that night, and that they will have at their quarters shortly a lot of photographs which the vulgar will denominate "corkers."

The Editorial Table.

Laboratory Practice, by Josiah Parsons Cooke, LL.D. New York: D. Appleton & Co.

This useful little book contains clear descriptions of chemical experiments intended to illustrate the general principles of the science. It is a very helpful book for the student, and though not intended to be used without a teacher, is still explicit enough to enable one to study and experiment by one's self. Probably without the intention, the author frequently returns to those chemicals which are most used in photographic practice and describes their properties and actions in detail. This makes the book especially valuable to photographers, and we can recommend it heartily to the photographic student, be he professional or amateur.

Miss E. J. Farnsworth, of Albany, who made the picture entitled "In the Harvest Field," which illustrated the September 11th issue of the PHOTOGRAPHIC TIMES, is illustrating a book by photography, which Nims & Knight, of Troy, will bring out. The PHOTOGRAPHIC TIMES will bring out another of Miss Farnsworth's pictures at an early date.

Omega Prints.—We have received from W. H. Crocker, the skillful amateur photographer of New York who made the "Vermont Hayfield," which recently embellished these columns, a number of Omega prints from negatives made with the same excellent Waterbury lens which he used in making THE TIMES illustration. They are all excellent, though one of an old house is especially picturesque and interesting. A number of views of the men-of-war at the navy yard in Brooklyn, on Carbutt's orthochromatic, are also very interesting.

There is great range in the matter contained in *The Illustrated American*, for the week ending October 31. The leading article treats of the great Methodist Ecumenical Conference at Washington, portraits being given of many of the leading delegates from the United States and from abroad. Then the wreck of the "Despatch" is portrayed with the aid of a sketch made on the spot, while another illustration of equal interest, a reproduction of an instantaneous photograph taken of Mr. Hearst's famous yacht "Vamoose," running at a speed of twenty-five miles an hour.

Record of Photographic Patents.

TRADE MARKS.

20,254. Photographic Plates and Films. G. Cramer.

461,905. Photographic Camera. James H. Hare and Bradbury P. Johnson, Brooklyn, N. Y.

461,910. Photographic Shutter. Erastus B. Barker, Newark, N. J.

462,116. Means for Holding and Carrying Photographic Films. Edgar E. Ellis and August L. Lehukering, Rochester, N. Y.

Taken.—Claude: What in the world are you doing?
Maude: Trying to take a photograph.
Claude: O, take me.
He was taken.

Queries and Answers.

162 L. G. Ross asks: 1. Would you kindly inform me what makes a printing bath work *greasy* and how to remedy it. The prints look greasy from the time I first put them in water until they are mounted. 2. What would you coat the inside of a tray with. 3. The prints tone too slowly. How do you account for that.

162 *Answer.*—1. The bath is probably too strong for your paper 2. With asphaltum varnish or thick shellac solution. 3. When the albumen is very much hardened, which all exceedingly strong baths will do, the prints tone but slowly. By warming the toning bath slightly the process is much accelerated. We advise you to use the Three Crown extra brilliant paper, which is evidently the best, and requires but a 40-grain silver bath. There is so much inferior albumen paper on the market, that difficulties like these described by you are very likely to occur, unless a reliable paper is selected.

163 CARAMEL writes: Why do some ferrotypers add sugar to the developer?

163 *Answer.*—To brighten up the whites. Without sugar the white portions of a ferrotype or collodion positive are of a yellow hue. Nitrate or sulphate of potassium, and a drop or two of nitric acid have the same effect.

164 S. W. A.—Will you please to give me a formula for a good retouching varnish?

164 *Answer.*—Sandarac, 1 ounce, castor oil 1 dram, alcohol 8 ounces. Dissolve and filter.

165 TRACY.—How can portions of a plate, refusing to develop uniformly with the rest, be so developed as to give a harmonious negative?

165 *Answer.*—Insensitive portions of an otherwise good negative may be improved by a little management. When the picture is nearly intense enough, turn the developer off the plate, and then, holding the developing glass six or eight inches high, pour the developer over the insensitive patches. Repeat this again and again, and a sensible increase of detail will be often brought out. Another way is to keep some strong developer in a separate glass, and after pouring off the ordinary developer, and washing the plate superficially, apply the strong developer to the parts, holding back with the tip of the finger or a suitable brush, but during the operation the plate must be frequently flooded with normal developer or water to prevent stains and harsh lines.

166 N. N. wants to know the formula for a paint to be applied to the back of plates to prevent halation.

166 *Answer.*—Burnt sienna 1 ounce, gum arabic 1 ounce, glycerine 2 ounces, water 10 ounces. Apply with a camel's hair brush, and remove before development with a moist cloth.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year $5 00
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" " one month's trial 50

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The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

TESTIMONIAL.

Put us down, as a starter, for one hundred and fifty copies of the "American Annual of Photography for 1892." We should not expect to "keep store" without this "Annual."

BARKER & STARBIRD,
56 Bromfield Street, Boston, Mass.
Headquarters for Amateur Photographic Supplies.

A WORLD-WIDE CIRCULATION.

As I write these lines I have by my side "The American Annual of Photography and Photographic Times Almanac for 1891." I also have by me two English annuals, but they appear as nothing before your "Annual," both with regard to the intrinsic value of the book and also with regard to the practicality of the contents. Your volume is, in short, pleasing, amusing, and instructive, and a very cheap volume. I have christened it "The Gem" in photographic publications.

WAMAN BABAJ,
Bombay, India.

While in South Carolina I made a great many (over four hundred) negatives with a Waterbury Detective Camera, using a roll-holder and 4 x 5 films. As a sample, I enclose a positive made on the same films. If I were to make a similar trip again I should certainly prefer to take this very convenient camera for ordinary pictures.

PROF. J. M. SCHAEBERLE,
Lick Observatory,
Mount Hamilton, Cal.

As the result of one advertisement in THE PHOTOGRAPHIC TIMES I have received over (100) one hundred letters from different parts of the country, and I must say that if I had occasion to advertise in any way I would certainly choose your paper on account of its wide circulation.

A. SMEDLEY GREENE,
4,517 Main Street, Frankford.

Studio Changes.

Elgin, Ill. Mr. C. S. Gerlach has sold out.

Grand Rapids, Mich. Warren Wykers has sold out to F. B. LeClear.

Columbus, Ohio. J. A. Pfeifer has sold out.

Business Notices.

NEW YORK, October 27th, 1891.

The copartnership heretofore existing between the undersigned under the firm name of Newcomb & Owen has been this day dissolved by mutual consent. The assets of said copartnership have been purchased and its obligations will be met by E. W. Newcomb.

E. W. NEWCOMB.
W. G. OWEN.

The business heretofore carried on by the firm of Newcomb & Owen, at the above address, has been purchased by the undersigned, who will continue the business at the same address, in conjunction with Mr. John A. Vanderpoel, under the firm name of E. W. Newcomb & Co.

E. W. NEWCOMB.

WANTED—Photographic Gallery. Address, giving full particulars, CHARLES PIERCE,
452 Fulton Street, Troy, N. Y.

WANTED TO BUY.—Second hand goods to equip a a gallery. KNAPP, 249 E. 124th Street.

AT A REDUCTION.

FOR SALE.—Eastman Bromide Paper of the following sizes: 3¼ x 4¼, 4 x 5, 4¼ x 5½, 4¼ x 6½, 5 x 8 and 8x10, 25x30 and 30-inch of the C grade. Discount 30 per cent. from the list prices.

THE SCOVILL & ADAMS CO.

FOR SALE—An Idex 4 x 5 Camera, with Instantaneous Lens and Shutter, five extra Holders, cost, $20, will sell for $9. Terms cash. Address
JACKSON, care of Photo, PHOTO TIMES.

FOR SALE.—A great bargain. One 4 x 4 Gundlach new portrait lens, with Prosch Triplex Shutter; also one No. 3, Serries II, Steinheil lens; list $122. Will sell for $60. Address CLARK, care of the PHOTOGRAPHIC TIMES Office.

FOR SALE.—A 4 x 5 Scovill Detective Camera with Morrison Lens, three Double Dry-Plate Holders, and Eastman-Walker Roll-Holder; cost, in September, 1886, $78.50, will sell for $35.00. Also a No. 1 Kodak purchased in October, 1888; has been used but a few times; will sell for $16.50 with fresh roll of film. Both cameras are in fine condition. Address, E. D. WHITNEY,
Brattleboro, Vt.

WANTED.—A live salesman, well posted in the stock trade. Address M., care GEORGE MURPHY, 2 Bond Street, New York.

FOR SALE.—Twenty-three volumes of the *Philadelphia Photographer*, from 1864 to 1885; *St. Louis Journal*, from 1877 to 1891; *Anthony's Bulletin*, from 1870 to 1889.
Address, MRS. HARRIET E. NORTH,
56 Genesee Street, Utica, N. Y.

BARGAINS.—A Berthiot or Goertz Instantaneous Lens, Iris Diaphragm for 4 x 5 Detective Camera.
GEORGE MURPHY,
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NEW GOODS.—Fine reversible back-view cameras with spring ground glass, rack and pinion focusing-screw, plate-holder and canvas case, 5 x 7 size, $12; 5 x 8 size, $14; 6½ x 8½ size, $16; 8 x 10 size, $22.50. Mail orders filled by
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THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

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Send for Special List.
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address
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JOHN HAWORTH, Manufacturer, Phila.

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396 Broome Street, New York.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Op ical Co., New York."

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Read this:— BROOKLYN, N. Y.

MESSRS. WILLIAMS, BROWN & EARLE.

Gentlemen:—I have been using two of Beck's lenses during the past season on the Sheepshead Bay Track, where I have officiated in my capacity of Photographer to the Coney Island Jockey Club, and am pleased to say they have worked to my entire satisfaction. I inclose two prints taken from negatives made with your lenses, showing their rapidity as well as good covering power when used with full aperture, as I am compelled to use them for my work. I have used lenses by various makers, but never found one to suit until I tried the Beck, which I think perfection. Very faithfully yours, JOHN C. HEMMENT.

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By a young man, as printer and toner, and make himself useful all around; good reference; small salary. F. E. Andrews, Sunderland, Vt.

By young lady of experience, capable of taking entire charge, position of trust in reception-room; accurate bookkeeper and correspondent. Miss Maud Green, care of General Delivery, St. Louis, Mo.

By a young man of experience in photography, a position in gallery as printer and toner; can also do general work, if desired; good references furnished on application. Address, H. B. Allard, Box 223, Parishville, St. Lawrence Co., N. Y.

By a first-class operator and printer; either inside or outdoor; twelve years' experience with the best houses. J. Wygant, Walker Valley, Ulster Co., N. Y.

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A good all-around man, who wishes to learn operating, desires a position of any kind in a good gallery; had experience in all branches, but would prefer position as retoucher and assistant operator; can give good references; reasonable salary. E. W. S., care Pirie MacDonald, 496 Broadway, Albany, N. Y.

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These holders are very light and strong and carry two plates. The *Tom Thumb* plate, being $2\frac{5}{8}$ inches square, is used not only for small Portraits, Landscapes and General Work, but also for Lantern-Slides. Enlargements with sharp results can be made up to 12x12 with good effects. Being the Smallest and most Compact Detective in the market, its adaptability as a Satchel Camera (*i. e.*, a camera that may be carried easily in a small satchel), is one of its features. Camera, in polished Black Walnut Case, complete, $10.00. Extra Double Plate Holders, 90c. each.

Send for sample picture and circular to the manufacturers,

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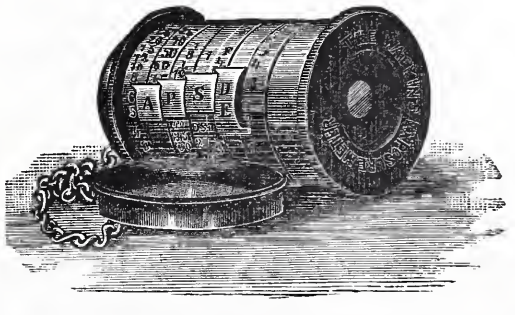
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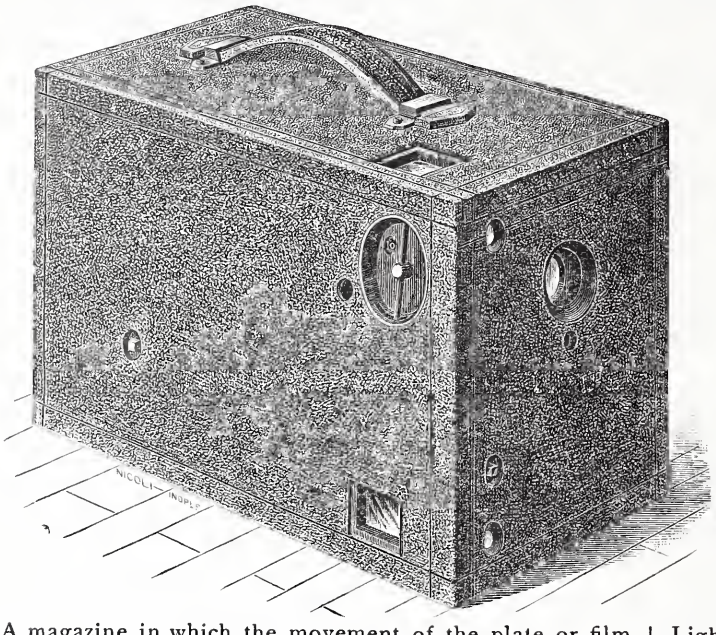
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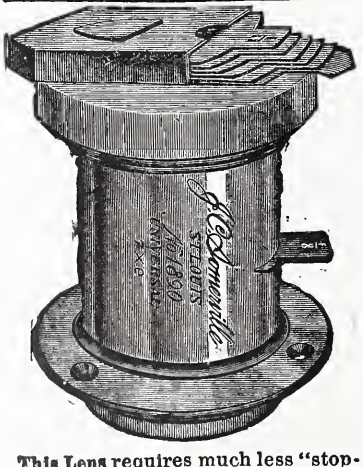
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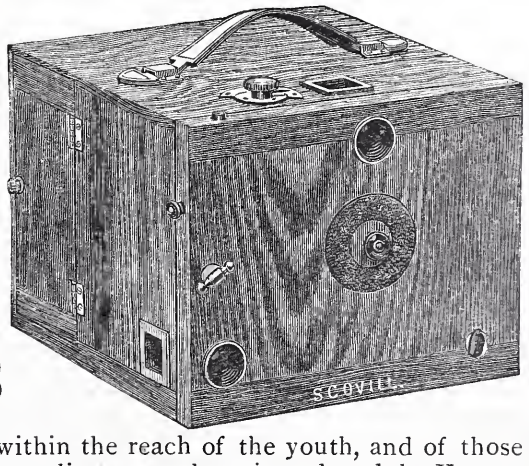
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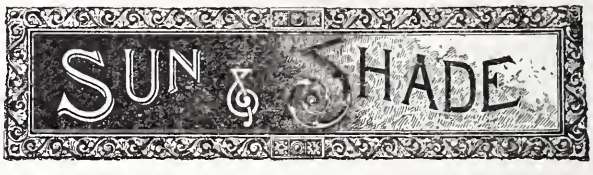
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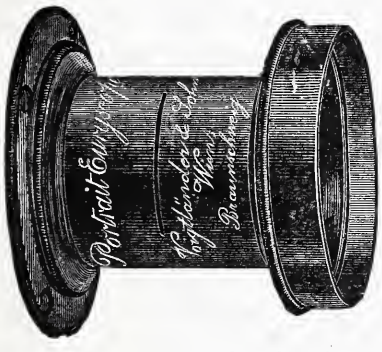


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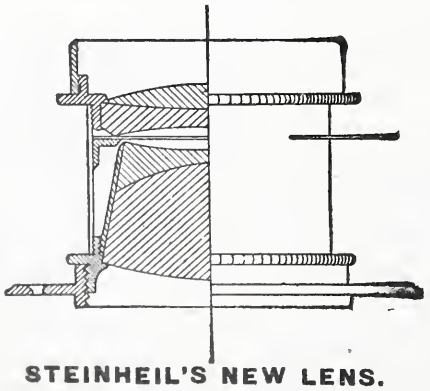
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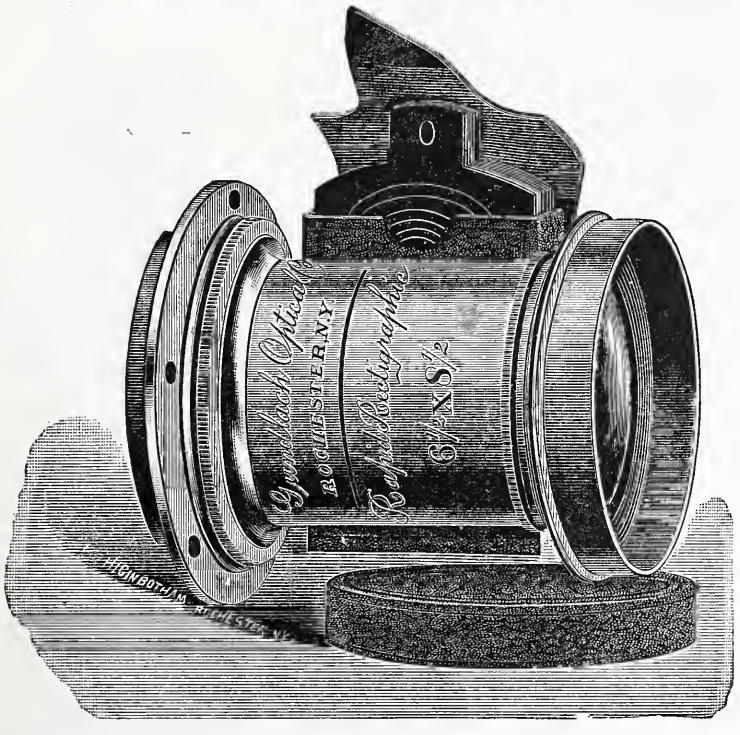
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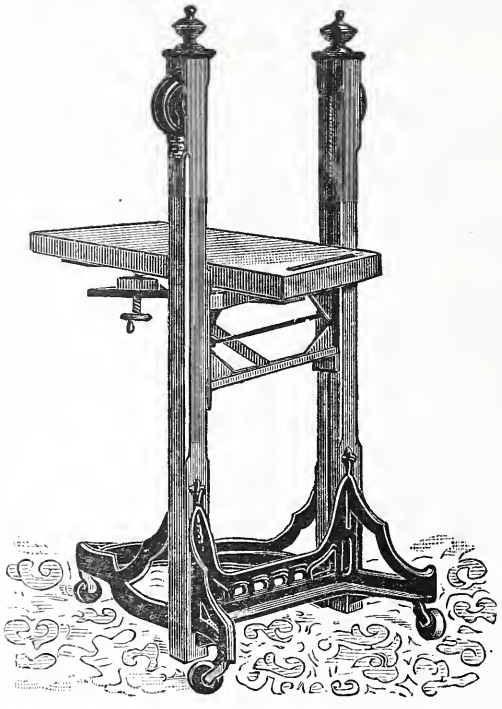
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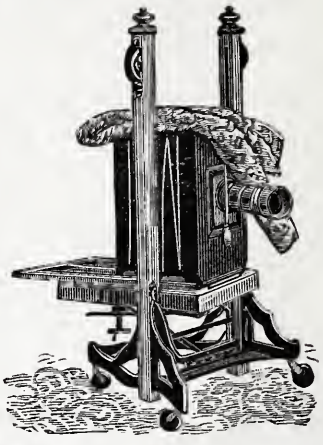
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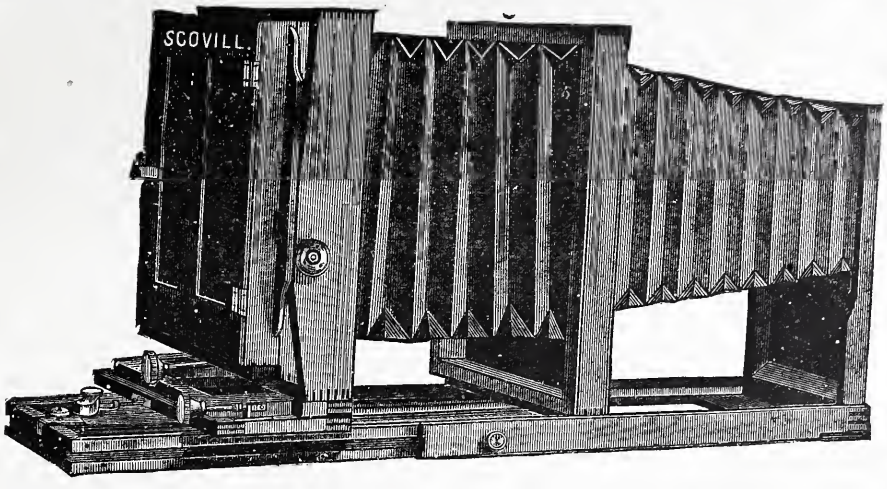
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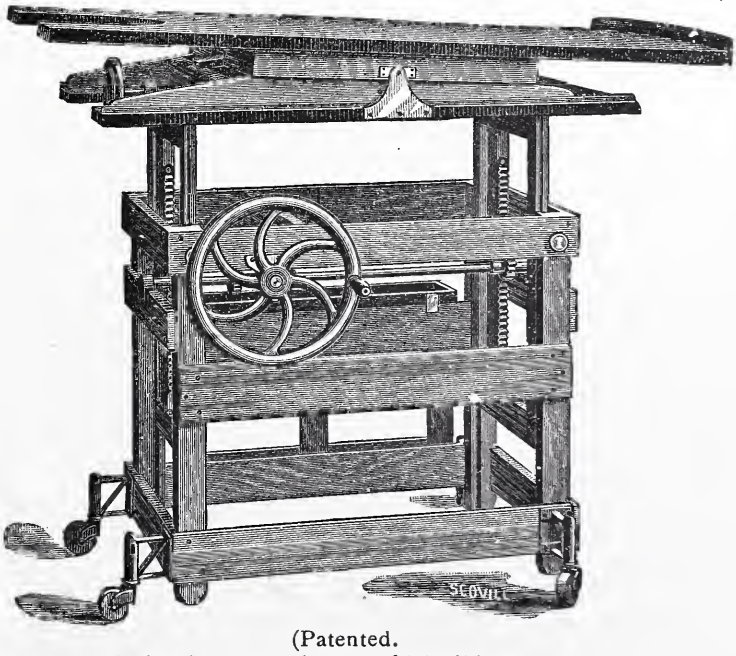


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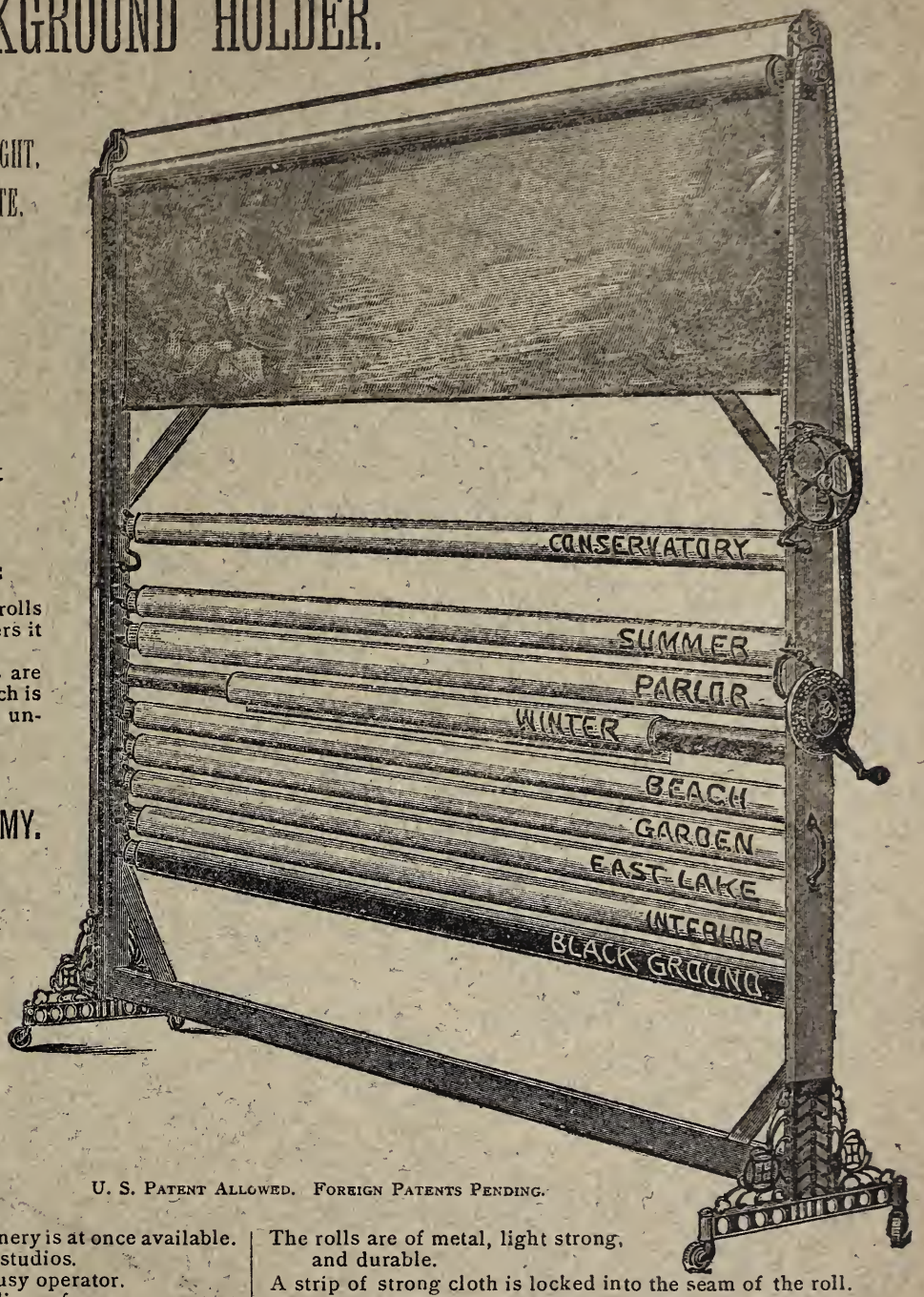
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W. G. Todd, Photo.

November Woods.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, NOVEMBER 13, 1891. No. 530.

NOVEMBER WOODS.

THE pleasing landscape which adorns this number of our magazine is from a negative by Mr. William Todd, of St. Louis, an ardent amateur photographer, and member of the Mound City Photo Engraving Company, which contributed a picture to our Convention Number. The pretty view was made in the St. Louis Forest Park with a 5 x 7 Wale "Universal" lens, smallest stop. It was made in November, and is therefore an appropriate picture for the magazine at this season of the year.

WHY BUSINESS IS COMPARATIVELY DULL WHEN THE FARMERS ARE GETTING HUNDREDS OF MILLIONS MORE MONEY FOR THEIR CROPS THAN EVER BEFORE.

THERE are few businesses more affected by dull or good times than the photographic Many consumers, considering that our work belongs to luxuries, in dull times postpone expenditures until business is good. Not that the photographic business is an exception in this particular, for all commercial affairs are likewise affected in proportion to their being esteemed necessities or otherwise. But this much is certain, whatever tends to improve the prosperity of the whole country, proportionately aids those engaged in our industry. To that end we describe some particulars in the financial field which, when heeded, will greatly tend to improve our situation.

There is altogether too little money in circulation in this country to get the full benefit of the trade which the enormous crops of the season should stimulate. As the first principle of all business is money to do it with, when the quantity of money necessary to do that business is restricted to one-third or one-half of what a healthy state of affairs demand, necessarily the business is stopped precisely to that extent. If such a stoppage benefitted anybody, there might—to those so benefitted—be some reason in it; but it is not shown that such is the case; for in business affairs, obstructions upon one trade necessarily injure all others. But we admit that there are men in Wall Street having long been associated with banking, who resist in every way any attempt to relieve the money stringency, which during this season in all recent years has prevailed to a most serious degree. But, striking to relate, not one of these bankers is able to explain why he antagonizes any legitimate increase in our circulating medium. Most of them are elderly men, who, inside of the walls of the clearing-house, have been frequently termed "old women," whatever that may mean; and their antagonism, which is not directed against any special form of currency, is a resistance to comfort upon principle, or, more properly, upon prejudice; for no principle is ever stated, even if gold dollars be the sole means of any proposed increase in our currency. They say, so far as they put their antagonism in words, that the country is in a healthier state by limiting the capital, and in restricting the business done; that it is unwise to have money easy, as it promotes extravagance and speculation.

In other words, while they would in no particular cramp their own pockets, they think it better to hold a kind of fatherly outlook over other people to see that they do not have too easy a time of it; somewhat after the practice of English railways which permitted the locomotive driver no cab shelter from cold, storm, or wind, for fear he would be inclined to neglect his duty if too much comfort, by a roof over his head, was allowed.

Fortunately for the growth of this country, advocates who reason in such ways are steadily being reduced in numbers; but, striking to relate, to-day it is in the financial field where most of them are to be found. They seem to take a form of pleasure in suppressing business affairs under a vague

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idea that they thus control the business of the country; and another striking feature in connection with their fatherly assumption, that merchants and the people must first consult with them as to its advisability, before getting or spending any money, is the readiness with which this self-assumed authority is sustained by the greater part of the public—sustained in a kind of blind faith in those who without sense or reason behind it assume such control.

Now these elderly magnates have been credited with knowing more than they do, for this whole financial business, concerning the volume of our currency, is exceedingly simple, and to be understood by any intelligent person without resource to the authority of anybody. We know to-day that there is insufficient money in circulation, because our banks have refused for the past six weeks or so to accommodate their customers with the usual loans, which, when money is not thus refused, permits those customers to do a business based upon it. While loans have not absolutely ceased, they have been reduced from one-half to four-fifths of what these customers required to properly conduct their affairs. While our farming crops this season have been about one-third greater than in any past year, our business affairs have not increased correspondingly, as each merchant may observe within his own circuit; big crops ought to make big business all around, but if there is insufficent money to do the increase, of course matters are limited to what money there is.

Now we are not advocating any special form of currency rather than another, except, of course, that it should be the very best; our purpose, more particularly is to draw the attention of our readers to the country's great need, in order that their influence to remedy the trouble may be exerted upon the coming Congress which assembles in a few weeks. For unless the business community demand more money, and that right energetically, we art not likely to get it.

Healthy business prosperity requires that no merchant or borrower should be unduly restricted in the obtainment of money, so long as he has good security to offer for its use. But it is a fact which no man can verifiably dispute, that whenever our busy fall season comes round, enormous rates of interest are charged for money, or, regardless of the first-class nature of the security offered, money is refused the borrower, because lenders and the banks have not got it, after they have deducted proper reserves for demands that they must meet. This is all wrong and needless, and produces untold misery; and, so far as its influence goes, is a literal premium upon poverty.

PHOTOGRAPHIC EXHIBITION AT THE AMERICAN INSTITUTE FAIR.

III.

WE take up the review in this issue where we left it last week.

Robert L. Bracklow has four frames—landscapes and architectural views, well printed on albumen paper. Frame No. 9 is not above general average, but the contents of No. 8 and No. 10 are exceedingly fine photographes.

James H. Stebbins', Jr. "Sunset in Mid-Ocean," "The St. Lawrence by Moonlight" are very successfully taken photographs of a peculiar character, described by their titles. The technical treatment of these plates testifies to the skill and patience of the operator. "Sunset on the St. Lawrence" is a cyanotype, unfortunately hung too high to allow of close examination.

T. J. Burton shows some instantaneous views printed from capital negatives on platinum paper. They would have been more attractive had they been printed on albumen or chloride of silver emulsion paper and toned in more lively color.

Two enlargements leave nothing to be wished for.

George R. Cromwell's frame No. 26 contains instantaneous views of Denver, Col., a collection of very good and attractive pictures. No. 25 and No. 26 are doubles, or as the catalogue calls them, photo-duplicates, a term not distinctly descriptive of their character.

C. H. Davis has a very large collection of photographs of various sizes, displayed in two frames. There are some very fine portraits among them. The bromide enlargements are also very good.

L. J. Brush shows some very good instantaneous views.

Douglas Pym exhibits portraits of great beauty, which were seen at the joint exhibition of last Spring.

H. M. Grisdale: A large number of exceedingly fine and accurately made instantaneous photographs, especially those on the Delaware and in the vicinity of Dingman's Ferry; very picturesque views.

Dr. Joseph Obermeyer has an exhibit, comprising eight numbers, rivaling in all respects any other in the hall.

177, "A Relic of Bygone Days," 182, "Delight in Disorder," are highly artistic; but the most pleasing of all is probably "Berchtesgaden," a mountain view, with excellent cloud effects.

Alfred Stieglitz: This exhibit comprises the numbers from 218 to 242, and in artistic and technical respects is not second to any other in the

hall. No. 234, "A Smithy," is an especially well-composed group; No. 227, "Cloud Study in Biarritz," and No. 220, "Cortina," is one of the very best photographs in the hall.

Ferdinand Ruppert exhibits two frames. Scenes in the old German town of Waechtersbach, and views on the coast of Massachusetts. The uniform excellent quality of every picture exhibited, whether taken instantaneously or otherwise, and without regard to other conditions make this exhibit one of the most meritorious.

C. C. Roumage exhibits eighteen instantaneous pictures printed from negatives of first-class quality. They are rather too darkly printed to do full justice to these excellent negatives.

A. P. Schoen shows views of Central Park in Harlem and in New Jersey. The negatives are too intense for printing on chloride of silver emulsion paper; unfumed albumen would be much better.

Hayward S. Cozzens. Of twelve pictures exhibited there are but three or four that will not pass severe criticism. We think the exhibit a very good one.

Miss Catherine Weed Barnes shows her Elaine illustrations. These pictures are elegantly gotten up in a large frame, quotations from the poem in old English script attached, and photographically speaking are of the highest order of merit. The accessories are well arranged, the negatives well developed, and the prints are carefully made. In the posing, however, the artist has not been quite so successful. We admit it to be extremely difficult to select the proper models for such purposes, persons capable of feeling the thoughts to which the poet has given words. This inability is especially shown by the "Launcelot" of the pictures. "Elaine" is better adapted to her character.

The last but by no means the least of the many collections in the hall is that of the veteran amateur Cornelius Van Brunt, who exhibits twelve photographs, mostly landscapes, made upon Carbutt's orthochromatic plates. They are without exception of the highest order, and testify to the skill of the operator.

The exhibition of the Society as a whole has proved to be a decided success, and we can only hope to see it repeated on future occasions and to be followed by other amateur association of this and neighboring cities.

Next week we shall review the work exhibited by professionals at the Fair.

HAND CAMERA WORK.

Mr. Thomas J. Bray, who started the discussion on this interesting subject in our issue for October 16th, writes that he is "much pleased to notice the interest taken in 'hand camera work' as evinced by the several articles* which have already appeared.

"I am sure, however," he continues, "that there are many more to hear from, and that there are doubtless some who are deterred from giving much valuable information from a sense of modesty, or from fear of criticism; or, perhaps, from thinking that they cannot give their experience in well-rounded sentences, or with prettily sounding words.

"To such I will say that we are not after poetry nor big words, nor fine diction, but we are 'gunning' for plain facts, practical experiences, an interchange of ideas and practice that will be not only interesting but highly beneficial as well.

"Come on then in your own plain way, and tell us through the columes of The Times how you develop and manipulate 'snap shot' exposures; let us hear from you whether you are successful or not; for, if unsuccessful, a perusal of these articles will help you to success. If successful, then you will help others to success, which will reward you for your trouble.

"There is more of this subject than appears at a glance, as many of us know to our sorrow. I would suggest, too, that through the medium of the Chautauqua Photographic Exchange Club, or in some such way, that we exchange prints on this particular branch, and if any 'Kodak Krank' has failures that he cannot account for, or wish to remedy, send them along for dissection and fair criticism, but no one should criticise unless a remedy for the fault accompanies the criticism.

"I think there is much to learn by showing up our failures, for by so doing we are pretty sure to find some kind friend to drop a hint or give advice by which good work will be ensured, and the difficulties encountered mastered."

Mr. Bray promises to describe his own method of work, both with plates and films, giving formulas, etc., after hearing from the others.

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* "Development of Instantaneous Exposures," by O. G. Mason (October 23d issue); "Hand Camera Work," by Henry R. Taylor; "My Experience with the Hand Camera," by Alfred L. Simpson' "Developing Films," by Miss M. S. Turner, and "Correcting 'Snap; Pictures for Art Illustrations," by Major J. W. MacMurray, U.S.A., in the October 30th issue.

HOW TO VARNISH CELLULOID FILMS.

MR. J. H. HARVEY, of the Amateur Photographic Association of Victoria, Melbourne, Australia, writes that he is "charmed with the celluloid film." and although he has been using it only lately, is so well satisfied that he will "use many plates less than usual in the future."

"The great drawback, however," he writes, "is the protection of the image from silver stains when printing from albumenized paper. I have used collodion, treating the negative as if enameling, by squeegeeing down to a plate of collodionized glass; but this, though satisfactory, is rather troublesome. Does any simpler method exist? I have seen gold size and turpentine recommended, and intend trying it, but have not yet had an opportunity. I should be glad to hear whether your experience has suggested anything effective."

Thinking our reply might be interesting to other readers of THE PHOTOGRAPHIC TIMES we repeat it in these columns. The method of enameling film with collodion has been employed by many photographers, and undoubtedly with satisfactory results, but the manipulation requires considerable time and much trouble.

The method we have employed with Carbutt's flexible films is to coat them with zapon, or as it is known in the trade, the S. P. C. crystalline varnish. After the film has gone through the usual treatment with glycerine, is dried, and flattened by slight pressure between the leaves of a thick book or something of that kind, fasten its edges with adhesive paper to a glass plate somewhat larger than the film itself. When the adhesive paper is perfectly dry flow the crystalline varnish over the film. This varnish is not so volatile as collodion, requiring from ten to twenty minutes to dry, and is therefore quite easy to manage. The stratum of crystalline varnish makes the film impervious to water on that side. It should, however, never be brought into contact with collodion, as that dissolves it and so destroys the protection.

If any of our readers have different methods which they have used with success, we should be glad to hear from them.

ON LIGHTING THE DARK-ROOM.

THE writer having hit upon arrangements which seem to meet with some success most of the requirements of dark-room lighting, ventures to describe them, in the hope of being useful to others who may be confronted with the same problem.

The principal requisites appear to be as follows:

1. The light should be safe for the plates. Nothing seems on the whole as good for this purpose as light through red glass.

2. The light should be safe for the operator. Red light is thought by many dangerous for the eyes. Yellow light is probably much better.

3. There should be plenty of light, both that objects in the room may be found without difficulty, and that the change from dark-room to daylight may not be too abrupt. There can be no doubt that frequent change from the ordinary dark-room to full daylight is hurtful, as it certainly is uncomfortable.

As minor points:

Artificial light is preferable to daylight on account of its greater uniformity.

Artificial light should not be in the dark-room itself unless the ventilation is very good, which is rarely the case. The size of the opening by which light is admitted to the negative should be smaller than the negative. It is very difficult to judge properly as to density when a flood of light pours in all around the plate. An adjustable opening is desirable.

The arrangement adopted in the Physical Laboratory of Adelbert College is as follows: The dark-room is a small room enclosed by board partitions in the corner of a larger room. In one end of the dark-room is a window about three feet by two. The window opens into a shaft eight inches deep, as wide as the window below, but narrowing to eight inches square above. The shaft passes through the ceiling into an unused attic. The light, a gas burner, is placed in this shaft, causing a strong up-rush of warm air, very helpful in ventilating the dark-room, which opens into the shaft at top and bottom.

The lower sash of the window is glazed with two thicknesses of red glass; the upper sash is glazed with plain glass, and covered with a carefully selected sheet of yellow post-office paper, oiled to render it translucent.

In front of the lower half of the window are two slides, opening from the center, so that the red light, according to the size of the negative, may be admitted through an aperture eight inches by ten, reduced at pleasure, or cut off entirely. The self-lighting gas-burner in the shaft is controlled from inside the dark-room. The sink is directly in front of the window, half of it covered with a rack, on which the developing is done.

Between the upper and lower sash projects a nearly horizontal screen or light shelf, of such a width, and inclined at such an angle, *that no yellow light from the upper part of the window reaches directly*

the developing shelf, while no light from the red glass comes to the operator's eyes as he stands in front of the sink.

The room is so bright that a newspaper may be read at the back of it. The yellow light in front of which the operator stands is not strong enough to be at all troublesome or to interfere with judgment in developing, while it is strong enough to keep the pupil of the eye sufficiently contracted to admit of one's going immediately into broad daylight without inconvenience.

Development is begun at the right-hand end of the rack, which is in almost complete darkness. Movement of the tray eight inches or a foot to the left brings the plate into the full red light of the lower sash. Plate-holders are filled upon a table at the back of the room, protected from the direct light of the window, as much as is necessary by the body of the operator.

In developing orthochromatic plates a dark curtain is lowered covering the upper sash, and the red light is reduced by the slides before mentioned to any desired extent.

No case of fogging or other difficulty traceable to the lighting has occurred, and the whole arrangement has proved in all respects convenient and comfortable.

Frank P. Whitman.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 551.)

CHAPTER IX.

INTENSIFYING PROCESSES, AND THEIR CHEMISTRY.

The verb "to intensify" does not belong to the early history of photography. The daguerreotypists (1839–55) do not appear to have endeavored (or at all events were not able) to remedy any defiency in the depth or density prevented by their negatives. As the developing solution left them, so they had to remain. If the photographer was not then satisfied with the picture on his silver plate, his sole remedy was to take another negative.

Whether this is not still the best plan to adopt is an open question—probably it is. But soon after the advent of the calotype process in 1841, a method of increasing the density or opacity of the developed negative was discovered, and this method was found to be still more applicable to the collodion process (1851) which displaced both calotype and daguerrotype. To such a process, the name of *intensification* was given.

The idea of intensification is not contained in Snelling's "Dictionary of the Photographic Art," published in New York in 1854. In Sutton's "Dictionary of Photography" (London, 1858), he alludes to the subject only under the head of "development, but in the second edition of this book (1867), we find a very good definition of "Intensifiers:" "This term is used to denote those substances, which, when applied to a negative, serve to increase the actinic opacity of the deposit already formed. One class of intensifiers acts by increasing the deposit of silver forming the image. To this class belong a mixture of protosulphate of iron and nitrate of silver, else pyrogallic acid and nitrate of silver. The later method is most commonly adopted.

"Another class of intensifiers's derives its value not from forming any new deposit, but from changing that already formed to a more non-actinic color To this class belong the alkaline sulphides, which blacken the silver deposit; and Schlipper's salt, which turns the deposit to a very non-actinic scarlet color. several other substances act after this fashion, but, as a rule, they are inferior to the first class."

Intensification of Calotypes or Talbotypes.—It will be remembered that the calotype negatives (consisting of silver iodide on paper) were developed by means of a solution of gallic acid. One of the best-known text-books on this process, "Thornthwaite's Guide to Photography," 1852, adds (page 84): "Development can be singularly accelerated by adding a few drops of aceto-nitrate of silver, when the image begins to develop itself; and very intense blacks are obtained by this method." That is, a thin image being produced by the developer proper (the gallic acid), this image was able to attract to itself more silver from the mixture of acetic acid and silver nitrate which constituted an *intensifier*, and was thus able to build itself up, and to increase in density.

Intensification of Albumen Negatives.—The albumen process of Niepce de St. Victor, 1847, consisted in forming silver iodide upon a glass plate coated with white of egg (albumen). After exposure in the camera, the image was developed by pouring over it a saturated solution of gallic acid. Mr. Malone* writes: "A negative image is the result. At this point previous experimentalists have stopped. We have gone further, and find that by pouring upon the surface of the reddish-brown negative image during its development a strong solution of nitrate of silver, a remarkable effect is produced. The brown image deepens in *intensity* until it becomes black."

* One of the best-known of the early practical workers in photography. The quotation is from "Hunt's Photography," 1851.

Of the same albumen process Mayall also wrote (Hunt, 1851): "After development, should the image be still feeble, pour off the gallic acid, rinse the proof with water, and pour on to it equal quantities of aceto-nitrate of silver and gallic acid reduced one-half with water. The image will now quickly develop."

W. Jerome Harrison.

(*To be continued.*)

PORTRAITURE.

[Read at a meeting of the Photographic Society of Kansas City.]

I DON'T know but that I launched forth a boomerang when I suggested at the last meeting, that one of us prepare a paper to break the monotony of a dull business meeting; anyway, I find that I was hit pretty hard, as this has caused me no end of trouble and worry. In the first place there is a subject to select, and when you stop to consider the wide and varied field that our pet occupation covers, this is no easy task, but not to be compared with the developing and toning of that subject so as to form a picture pleasing to the ears of such amateurs as are members of the Photographic Society of Kansas City. There is one field which I think is newly trodden ground to most of us, and which with our new dark-room and studio, we are prepared to investigate in a way that will prove to be both profitable and interesting.

Portraiture work is, I think, without dissent, the most intricate part of photography. The one in which the artistic eye and good taste of the man behind the ground glass shows to the best advantage. It is no trick to take a portrait. Put your model in a chair, in as good a light as possible, get the camera all focused and ready, tell him to "look pleasant, smile just a little, now that's good," expose your plate and there you are. This is very simple, but when you come to get a print off that plate and show it to your friend, the chances are nine to ten that *he* will either knock you down on the spot, or *she* will tell you that if you ever show that to any one the results will be very serious. To take a portrait that is a good likeness, graceful pose, in short, a picture in every sense of the word, is no easy task. Has not this been your experience? How rare it is to find, in looking over an album, a good picture, and when you do run across one, how you admire it. A professional photographer is greatly handicapped in that he has to take every one that comes to him (and we all know how few good subjects there are), while an amateur has free scope, can choose his subjects, conditions, etc., and should, I hold, with the same conveniences, take better pictures than the professional. Of course we cannot all be Sarony s, Fredericks or Ryders, but with the sky-light we have here we ought and will turn out some very nice work. So I thought I would try and entertain you this evening with a few ideas and suggestions concerning portraiture photography that I have been able to gleam from several good articles that I had at my command.

Concerning subjects, very little is to be said; as every man has his individual tastes it would be very wrong to lay out any one line of action. Be sure and study your subject, watch his movements, his positions and expressions, so that when you have him under the skylight, you know just where you want to place him. A delay in getting ready, changing your model about in numerous positions, is almost sure to get him out of humor, and the more you change him, the less decided you will become as to where you really ought to have him. Always try to be alone, have everything quiet; nothing is more disagreeable than to have three or four fellows standing around suggesting this or that way of doing it. I think our scheme of reserving the studio on certain hours is a capital one. One of the first considerations of importance in portraiture photography, is the background of the portrait. It should be quiet, that is entirely devoid of all objects, which, by their form or color, are conspicuous and obtrusive. We may have painted screens, decorative or very plain, but they should all be so arranged that, while they may contain many objects of interest, they are always subservient to the people placed in front of them. Where using a perfectly lain background for full-length figures, it is a good scheme to have 6 or 7 feet of the cloth coming from the bottom of the frame in a curve to the floor. This gives a clear white effect, not showing the floor, and the abrupt ending of the background on the frame, which always detracts from the effect. In portraiture it is particularly essential that the light should come from a point very much higher than the sitter is placed. The light striking the face on a level with it destroys those shadows under the projecting features which give character or expression, and makes a flat weak picture. While on the other hand, if we have our light admitted through an opening, the lower part of which is about on a level with the head and extending to a height of 10 or 12 feet, so that the main body of light will come in at an angle of 45 degrees or more, we will generally get the most suitable lighting to show the features to good advantage, and bring out a satisfactory likeness.

When the light is admitted over the head or from a source too nearly perpendicular, the effect produced is peculiar and generally unsatisfactory, owing to its only striking the top of the forehead, the cheek bones and the nose, and leaving all the rest of the face in shade. The reflecting screen, used in lighting the dark or short side of the face, is better placed a little in front of the subject, at an angle to the light, and leaned over at the top a little. Care should be taken not to place it too near the sitter, especially if the face be turned toward the screen, because, by reflecting a light into the shadow of the eyeballs, their depth will be destroyed, and an unnatural, pale-eyed appearance given.

For the production of interesting portraits, either one or the other of two classes of heads are necessary, namely, the picturesque or the beautiful. Elderly people furnish the type of the former, and ladies and children that of the latter. Old men with long hair, large feature and great beards are always fine subjects, and will bear the most vigorous lighting. In such a subject, in order to most strongly bring out the character, we should pose the head near the window, letting the light strike from high. The reflecting screen should be kept further back, so that too much light may not be reflected upon the dark side, thereby destroying that force of light and shadow which is the soul of such subjects, giving bold relief as it does and forcing out the character. Elderly women, if intellectual and with rather large and well-formed features, make good subjects, but require to be dealt with less forcibly. When we come to deal with ladies and children, we encounter our greatest difficulties, and will find rules of the least value, often obtaining much better success by happy chance than by careful arrangement. In general, however, the lighting should be much softer in these subjects. Less light will be found better and either lower or more diffused, which will be obtained by keeping the sitter further from the source of light. The reflecting screen now forms an important aid, and by it we must destroy those heavy shadows, which, as previously said, are the soul of the picturesque, but mar the beautiful, and while there should be light and shadow sufficient to give roundness, they must not destroy that softness and fullness which is inseparable from beauty.

In that constant effort to obtain novelty, which seems now to be the fit of business, many experiments are made, and what are called tricks by artists are resorted to to catch the fancy of the unlearned and unthinking; but while they may serve well enough for the time being the object which is sought after, they never wear so well as those works of art wherein the rules of good taste and judgment have been followed. It is rarely that a head lighted on what artists call the short side of the face, which is the side turned away from the spectator, has so good an effect as when lighted on the near or full side. The reason of this is, that lights make the impression upon the eye of advancing, while the shadows have the contrary effect of receding or retiring, consequently when we have the further side of the face brightly illuminated, it seems to advance from its proper position, while the near side rather retires, and the result is a flattening instead of a rounding of the head. This mode of lighting also has the effect of widening a face, and therefore may be resorted to by photographers in some peculiar instances where such an effect is needed. Constant care should be given to the securing of a proper amount of half-lights and half-shadows. This is a matter belonging rather more to the timing of the exposure and developing of the image than the lighting. Under-exposed or under-developed plates are always lacking in half-tones.

In the prints made from them one can only get high light and deep shadow, and the effect is harsh and disagreeable, and often destructive of a good likeness; and, in case of over-exposure, while the chances of a likeness are not lessened, the work from an entire prevalence of half-tones will be flat and interesting. It will be robbed of those touches of deep shadow and crisp high lights which are so essential in the making of a good work of art. Too little exposure would only be admissible in strong character heads which we wish to be harshly and expressively set forth. With ladies and children there should be ample exposure and careful development. In fact, I think it is better to give little too much rather than too little exposure, and to carry the development further than you would in landscape work. The greatest excellence to be striven after, and that most difficult of obtainment, is where the numerous relative tones are given in all their refinement of gradations, as from a black coat or velvet collar to the white collar or bosom—these being the extremes—and the entire flesh tints being upon another scale within the range of these two, possessing hundreds of fine gradations of light and dark, but none of light as the white of the linen nor none so dark as the black in the clothes. The first quality noticeable in a bad photograph portrait is the entire absence of proper relative shades of difference throughout the work, the shadows of dark clothes, of furniture or surroundings, and of the flesh being one and the same

in depth and the lights upon the lines undistinguishable from those upon the hands and face.

Posing sitters for their portraits in respect to the most proper and agreeable disposition of the head, body and limbs, is an exceedingly difficult part of portraiture. Even painters are seldom successful in giving a look of ease and dignity, although they are free to make any arrangement that may be best suited to their fancy, while the photographer, on account of the necessity of obviating as far as possible the effects of distortion by his lens, is hampered into disposing all parts, as nearly as possible, on the same plane, which adds greatly to the look of constraint. Foreshortening is an important element of the picturesque in art. To be deprived, therefore, in photographing a figure of the benefit of having the arms or lower limbs extended towards you or receding is a great disadvantage. When we leave the single figure and attempt groups, we are absolutely bebarred from making any of those beautiful arrangements, such as the old masters have left us. We must, on the contrary, adhere almost to the regularity of a company of soldiers drawn up in line for inspection. Attention now seems to be turned principally upon heads alone. In the old days it was fashionable to give us the man or woman as they looked from head to foot; now our photographers seldom go beyond half length, and in the case of men I think it is in better taste that we do so, for there is nothing more unmanageable than a man's legs in a pair of stiff pantaloons. With the ladies it is often easier to get good full-length pictures on account of the greater variety of their costumes and the interest to be derived from well disposed drapery. In half-length poses, a more easy balance might be obtained with the figure standing instead of seated, were it not for the difficulty of keeping still. In a chair persons are very apt to settle into a sort of a lull which is sure to destroy any look of dignity, and if asked to sit up, are sure to get into an unnatural and forced position. There are those whose poses will always appear easy and graceful in whatever attitude they may take, but they are very rare, and one must call in play his wits and his patience to compensate as far as he can for the shortcomings of his sitters. It is a rare gift to be able to make your model feel perfectly at ease when posing for a picture, and one which we all should cultivate, for it is a most important factor for good results and graceful poses.

About retouching I will say very little, as I think very little should be done. Beyond erasing the small imperfections which appear in the skin, I do not think it good taste to do much. Sometimes by throwing the ground glass a little out of focus, you can overcome a good many freckles, etc. A subject properly lighted should require very little retouching. Experience is the great teacher, and I think this applies especially to photography. So I hope that every member of the club will use the studio often, experimenting in the numerous and different ways of taking a picture, always striving to produce a work of art rather than a mere likeness. From what I have already seen done during the past month, I think we have several artists already, and there is no doubt but that we have a large amount of artistic genius here amongst us which our studio will develop and bring forth to the admiring gaze of the public and the world at large.

W. H. Perine.

Correspondence.

INTERCHANGE OF ILLUSTRATED SUBJECTS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: An illustrated lecture by the California Camera Club, entitled "The Yosemite Valley," is now on circuit.

It will be in the hands of the New York Society of Amateur Photographers in the last half of November.

In Columbus, O., first half of December; St. Louis, Mo., last half of December; Louisville, Ky., first half of January; Cincinnati, O., last half of January; Pittsburgh, Pa., first half of February; Washington, D. C., last half of February; Newark, N. J., first half of March; Rochester, N. Y., last half of March; Syracuse, N. Y., first half of April; Peekskill, N. Y., last half of April; Hartford, Conn., first half of May; Providence, R. I., last half of May.

The sets "White Mountains," "Columbus, O.," and "Boston," can be had on application to me.

Respectfully,

Wm. Garrison Reed,
Manager.

BOSTON, 19 Kilby St., October 31, 1891.

DIVIDING THE HONORS.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sir: I desire to thank you again for the superb manner in which my negative of a little girl has been reproduced in the TIMES.* The many compliments which I have received on account of it should be shared with Mr. Gutekunst to whom I feel is due more credit than to me.

Very truly yours,

W. H. Shuey.

CHICAGO, November 6, 1891.

* October 23d issue.

Notes and News.

The Amherst Photographers have organized a camera club.

L. C. Powell, a photographer at Gadsden, Ala., committed suicide Tuesday last by morphine while temporarily insane.

Sculptor J. Scott Hartley, who made the Daguerre Memorial, has written a very complete work on "Anatomy in Art and the art of Modelling," which is reviewed in another column of this issue.

A Photographic Exhibition is proposed by the Manhattan Chapter of the Agassiz, Association. W. T. Demarest, 339 West 27th Street, is the Corresponding Secretary.

Catherine Weed Barnes's Exhibition, which was recently shown at Glasgow, Scotland, will be displayed at Leeds, England, during the forthcoming exhibition in that city.

An Acceptable Gift.—The handsome oil painting of Superintendent Charles Wager Hull, recently presented to the Board of Managers of the American Institute Fair by Press Agent Chamberlain, has been hung in the gallery of the Society of Amateur Photographers.

A Portrait of H. I. M., William II, German Emperor, on bromide paper will form the frontispiece of the "British Journal Photographic Almanac" for 1892. The portrait shows the Emperor as he appeared when he wore merely a moustache.

Elected.—Mr. J. W. Morrison, the well-known photographic merchant of Pittsburg, Pa., Republican nominee for State Treasurer, was elected "by a large majority" to the office for which he was nominated, and this in spite of a very determined opposition.

The delay in the appearance of THE PHOTOGRAPHIC TIMES last week was occasioned by an unavoidable delay in finishing the Brooks portraits for that number. Mr. Gutekunst was obliged to print an entirely new edition at the last moment, and as a consequence the magazine was a few days late, though every effort was made to bring it out as promptly as possible.

Fire.—A destructive fire occurred in the the factory of the American Optical Company, New York, Thursday morning, Ootober 29th. Much apparatus was destroyed by fire and water; but the proprietors, The Scovill & Adams Company, had a sufficient stock of this factory's standard goods to fill all orders. Arrangements were made by which the work of the factory was resumed within twenty-four hours after the fire.

The Camera as a Temperance Advocate.—English temperance societies employ the camera as a means to forward their mission. Magic lantern vans travel the country, visiting towns and villages, and give entertainments in the form of views of all parts of the world, interspersed with slides on temperance subjects.

A Photographic Veneer.—A recent invention covers the use of certain forms of collodion for the application of photographs to cabinetware. The inventor applies the print to the wood to be decorated, and the surface is afterward polished by pressure on a metallic surface. The invention has for its principal object the veneering of furniture.

The Hand Camera at the Polls.—The hand camera is said to have taken an important part in the recent election in Philadelphia. Forty-two hand cameras were employed, one for each division of a certain ward where "repeating" was expected. A man was easily found who knew his own division thoroughly, and who, when he suspected a repeater, could "press the button" on him. By comparing photographs after the fight, "repeaters" could be discovered and brought to justice with very little trouble.

The Chicago Society for the Advancement of Science has been organized with the following board of directors: Dr. Bayard Holmes, Gayton A. Douglass, Rev. M. L. Williston, Dr. Stanley M. Black, Professor George E. Hale, Professor George W. Hough, Charles O. Bornig, James Hawkins, Dr. C. G. Fuller. This organization will undoubtedly be an important factor in the scientific work of this country, and will fill an especially useful place in entertaining distinguished visiting scientists during the World's Fair in Chicago. The society will be divided into a large number of sections, one of the most important of which will be that devoted to photography.

Photography at the World's Fair.—"I have investigated the matter," writes Mr. Edwin H. Peabody, chief of the Department of Liberal Arts of the World's Fair, "and find that photographs belong with photographic material and apparatus, in class 821, grade 147. They will be so installed, and I hope that a reasonable amount of room will be furnished for the purpose."

"This is the first time that we have ever been able to obtain anything positive as to what was to be done with photographs by American photographers at the World's Columbian Exposition," writes Mr. Gentile, to whom the letter of Chief Peabody was written, from which we quote above.

There is an Interesting History attached to the photograph of Mme. de Bonnemain inscribed "*Je t' adore, Marguerite,*" which lies in Boulanger's coffiin. When the sudden freak seized her to know the General she wrote to a relative who was a friend of his: "I am dying to meet him. Do have him to dinner, and ask me also." Both were invited. Mme. de Bonnemain hastened to Paris to order a toilet for the occasion, and was so pleased with it that she went, before going to the dinner, to be photographed in the new dress. One of these photographs she sent to the General, and it is that which reposes beside his remains.

To Enamel Prints on Albumen or Gelatino-Bromide Paper.—A very clean plate, larger than the print to be enamelled, receives the following mixture by means of a tuft of cotton: Turpentine, 500 c.c.; rosin, 0.02 gramme; beeswax, 0.005 mm. The plate coated with this composition may be used for several operations. Dampened prints are applied to the plate (care being taken to avoid

the interposition of air-bubbles, and when dry they may be easily detached. In the rather improbable case of a failure, the operation is begun again with the same print. —*L'Amateur Photographe.*

The Merits of the New Developing Agent, para-amidophenol, are being tested by amateurs all over the country, as a rule with most gratifying results. At present nothing seems to stand in the way of "para" but its excessive cost, but this will without question be speedily reduced to a figure where it will be within the reach of all. President Frank La Manna of the Brooklyn Academy of Photography recently exhibited samples of photos developed with hydro. eiko. pyro. and para., the advantage being decidedly with the new developer. President Stebbins of the Society of Amateur Photographers has recently contributed some valuable notes on the use of para. to the PHOTOGRAPHIC TIMES.—*N. Y. Recorder.*

WHAT ARE THE ACTIONS OF THE ALKALIES IN THE DEVELOPMENT?

THE principal action is, as we have said, to increase the property of certain developers to absorb oxygen, and thereby, to possess a more energetic reducing action. That needs no comment; it is a scientific fact. But besides this and neutralizing the hydracides formed by the reduction of the silver haloids, there is a secondary action which is more important, occurring with every reagent, and permitting one to conduct the development at will, so to say.

It has been shown that when a dry-plate is exposed to gaseous ammonia before being subjected to the luminous influence—this was the starting point of the alkaline development and—Dr. von Monckhoven has demonstrated that ammonium hydrate, a caustic alkali, acts on silver bromide as does heat when preparing the emulsion, that is, causes certain changes in the molecular arrangement of the constitutive elements of the salt, Ag and Br, which renders the salt exceedingly sensitive to light. Therefore it is admissible, and experiment proves it, that the alkalies act somewhat in a similar manner during the development and predispose the silver haloids to dissociation. The whole silver film is necessarily acted on, and if the alkali be in great excess a general reduction takes place before the details and density are obtained. This is termed fogging. But when employed at certain doses to act independently from the reducing agents to which they unite, and of which, beyond a certain limit, they do no more, as a consequence increase the reductive property—the alkalies if not enough powerful to cause a general reduction, act, however, on the parts already modified by light. Therefore the parts impressed by weak lights—those forming the half-tints of the picture—acquire a greater tendency to reduction, and if the reductive power of the developer is not energetic, as it happens when the reagent is employed in small proportions, these parts in presence of three alkalies will develop sometimes simultaneously with the most impressed and in every case, except when the exposure is insufficient, before the latter acquire a great intensity,

The reader should bear in mind these actions of the alkalies; their judicious applications during the development are of the greatest importance to obtain good negatives.

The carbonates act necessarily with less energy than the caustic alkalies and permit to increase the dose with less danger of producing fogging or blistering.

The alkalies—caustic ammonia excepted—act too energetically with pyrogallol which then, by rapidly absorbing the atmospheric oxygen, soon exhaust its reductive power.

For 1 of pyrogallol 1½ parts of K_2CO_3 is a normal dose; 3 parts is a large dose; 5 parts is a maximum. Water, 100 parts.

For 1 of pyrogallol 2 parts of Na_2CO_3 is a normal dose; 4 parts is a large dose; 6 parts a maximum. Water, 100 parts.

For 1 of hydroquinone, dissolved in 100 parts of water, from 3 to 15 parts of Na_2CO_3 have been employed. Bouillaud uses for instantaneous exposures as much as 25 parts, and 6 of sodium sulphits.

With the same quantity of hydroquinone from 3 to 12 parts of K_2CO_3 or from 1 to 4 parts of caustic soda are used. Himly compounds the bath with 2 parts of hydroquinone, 14 parts of sodium sulphite, 7 parts of NaOH and 100 parts of water.

When using large doses of alkalies it is advisable to add a restrainer, say, ½ part of potassium bromide per cent.

P. C. Duchochois
in the Photographic Image.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF KANSAS CITY.

THIS new Society held a very interesting monthly meeting at their studio rooms on the evening of the 28th ult. President Raymond presided, and there was a full attendance of members.

After the routine of business had been transacted, a number of negatives representing studies of lighting and posing, made by various members under the new studio skylight, were exhibited and freely discussed and criticised. Some really good studies were presented by Messrs. C. H. Clarke, Dr. W. T. Starck and L. D. Arnold, while, some excellent landscape negatives were shown by Mr. W. H. Perine.

It was resolved to hold special meetings on the second Wednesday evening in each month during November, December, January, February, March, and April, at which times papers will be read, samples of work exhibited and other entertainment. The regular business meetings to be held on the 4th Wednesday evening in each month.

At the November special meeting, Mr. G. W. Pearson will read a paper on the application of photography to engineering.

The special order of the last meeting was a paper by Mr. W. H. Perine, on "Portraiture," which was a most excellent document, and was listened to with marked attention, and afterwards quite fully and freely discussed by the members present,

THE CAPITAL CAMERA CLUB.

THE exhibition of this Club (of Washington, D. C.) which closed Saturday evening, October 31st, was a most creditable one. The spacious quarters of the club, corner Seventh and D streets, were thrown open to visitors, who were thus enabled to see the inside workings of an amateur photo. club, with its gallery, dark-room, etc. Something like 100 framed pictures were shown, many of the frames containing a large number of prints. Mr. F. W. Barratt exhibited one of twenty-four life scenes in Manitoba. Mr. Le Brenton's work was of a high character, comprising bromide, platinum, and silver prints and enlargements. His "Thanatopsis Illustrated," the illustration being a view of Marin county, Cal., well suited to the quotation, is a piece of artistic work worthy of great praise.

An old mill near Newport, (bromide enlargement). "Ready for the Ball" (a portrait of a handsome woman), and "Sweet Sixteen," by the same author, were also very creditable. Mr. F. J. Cullen was represented by some very good work. "On Parade," a large panel, was much admired. So also were a large print of the new Lemon building, and several portraits printed on porcelain. Mr. F. B. Dante was represented by a number of creditable landscapes; the frame containing the Aqueduct and Cabin John's Bridge were his best efforts. Dr. Arthur J. Hall had a couple of Emergency Hospital Scenes. Mr. John E. Mitchell's views of Rock Creek were dainty pieces of work, and a large frame of portraits taken in the club rooms (as were most of the portraits exhibited), was also admired.

Mr. Poynton was represented by some first-class portraits and groups; Mr. Albert L. Moore, by eight Kodak views. Mr. Briggs' "Happy Family" was a cute representation of a dozen kittens at breakfast. The en larged bromide of Mr. Beall's little Cubans diving for coppers was one of the most interesting in the collection. Ferns and potted plants ornamented the rooms. It is the intention to have a permanent exhibition of pictures, to which changes will from time to time be made.

The Editorial Table.

The Photographic Image. By P. C. Duchochois. Published by the author.

All photographers, both professional and amateur, will receive the announcement that this book is ready with a great deal of interest, as a book by Mr. Duchochois is sure to contain much which is of the highest practical value. This book is no exception to the rule which has been maintained by "Lighting in Photographic Studios," "Photographic Reproduction Processes," and the other works by this veteran photographer. The present book is a theoretical and practical treatise of the development in gelatine, collodion, ferrotype and silver bromide paper processes. It contains much that is new on these subjects, and as the embodiment of Mr. Duchochois' experience, the entire book carries with it an authority very helpful to the beginner in these days of so many publications on the various subjects in photography. Although in most text-books the subject of development is well described, it is not treated in all with the importance which it undoubtedly merits. It is not sufficient to give formulas and to explain their uses in various cases. Their applications should also be illustrated by examples, and from these examples simple rules should be deducted. This Mr. Duchochois has done in an entirely acceptable manner. He takes as his motto Captain Abney's saying, that "Development is in reality an art and a science combined; the *art* consists in getting gradation, the *science* in making your solution to obtain it." We reprint in another column a part of the book on the action of alkalies in development, with the author's permission, to give our readers a more definite idea as to just how he treats the subject.

Praktisches Taschenbuch der Photographie. By Dr. E. Vogel. Berlin: Robert Oppenheim.

This is the first literary effort of the son of Prof. Vogel. It is an attempt to instruct in the practice of photography similar to a score of other text-books for beginners. There is nothing new in the little book; it is really merely an echo of the world renowned book by his father, from which he naturally quotes whenever opportunity offers.

"Snow-Bound, a Winter Idyl." By John Greenleaf Whittier, with designs by E. H. Garrett. Boston and New York: Houghton, Mifflin & Co.

This dainty volume in its beautiful snow-white binding forms undoubtedly the most satisfactory presentation of Whittiers' most beautiful poem which has yet been made. It is embellished with an engraved portrait of the author as a frontispiece, and by fourteen full-page photogravures. The illustrations make this edition especially interesting to photographers. Their truth to nature is such that any and all of them might be from photographic negatives, and the process of reproduction leaves nothing to be desired. The paper, press-work and binding are simply perfect. Price, $1.50.

"Anatomy in Art," by Johnathon Scott Hartley. Illustrated. New York: Published by the Author.

Mr. Hartley's reputation as a sculptor is such that a work on this subject by him is sure to obtain a large and cordial reception, not only by art students, for whom it is intended as a practical text-book, but also by a large class of general readers who are interested in the subject of art, especially the art of modelling. The book is in the main an embodiment of a series of lectures delivered before the Art Students' League of New York in its early days, and is intended to present a simple and direct method for studying the external anatomy of the human form, both in action and repose. Illustrations from Fau's celebrated work on "Anatomy and Artists" are incorporated, as well as drawings from Schadow's work on "Proportion." To these have been added reproductions from photographs made from nature under the supervision of the author. The description and analysis of the art of modelling is most complete, and coming from a master workman is invaluable to the student. There is also a chapter on the laws of proportion as applied to the human figure which still further enhances the value of the book. Including the illustrative plates the book contains 135 pages. It is printed on excellent paper, and substantially bound in cloth with gilt design. The size is royal octavo; and the price, $3. The book will be sent post-paid by mail on receipt of price by the author, who is also the publisher. New York: 145 West 55th Street.

The Portrait of Bishop Brooks.—We congratulate the readers of THE PHOTOGRAPHIC TIMES on the excellent picture of Bishop Phillips Brooks which adorned the preceding issue of this magazine. It is unquestionably the best and most characteristic likeness of the Bishop which has been made in late years.

From J. A. Bates, of Savannah, Ga., we have received a cabinet picture made with a B Waterbury lens, which cannot be surpassed in technical qualities. The subject is a span of horses and carriage. Everything is rendered in a most perfect manner. Mr. Bates values his Waterbury lens more than any lens in his collection, saying that he would not take $75 for it.

"The American Annual of Photography and Photographic Times Almanac" for 1892 is now in the bindery, and will be ready as announced on December 1st. 16,000 copies of this book will be issued in the first edition, and over ten thousand copies have already been sold, a large edition will go to England.

The Political and Social Survey, contained in the "Progress of the World" department of the *Review of Reviews* for November, is unusually comprehensive. It deals with pending American political issues, and gives portraits of Messrs. Hill, Platt, McKinley, Campbell, Pattison, Boies, Wheeler and Russell. In a discussion of university and library progress and of American educational philanthropy, are pictures of Senator Stanford and President Jordan, apropos of the opening of the new Leland Stanford University; of Mr. Henry W. Sage, in connection with the opening of the magnificent new Sage Library at Cornell University; of Mr. W. F. Poole in the course of comments upon the progress of libraries and universities of Chicago; of Mr. Henry Greenwood in a discussion of the progress of libraries in England, and Ex-President Hayes accompanying allusions to the recent meeting of the Prison Congress at Pittsburgh. This number of the *Review* also contains excellent portraits of the following famous men who have died during the past month: The Right Honorable William Henry Smith, Mr. Parnell, General Boulanger and Herman Melville.

Squillsby, who works in a photographic studio, popped the question successfully the other night, after which he remarked:

"And, now, I suppose you will allow me to take a kiss?"

"Why, of course, she replied, "it would be in good taste, now."

"Very well," said Squillsby, "turn your head a little to the right, fix your eyes on that picture there—so—that's it—smile just a little—wink as often as you please—there—now the operation commences."—*Truth.*

Record of Photographic Patents.

462,335. Photographic Shutter. Frank M. Spaulding, Kalamazoo, Mich.

462,382. Photographic Printing Machine. De Witt C. Hoover, Buffalo, N. Y.

462,459. Magazine Photographic Camera. William Trueman, Brooklyn, N. Y.

462,507. Flash-Light for Photography. Edward M. Pine, Washington, D. C.

The Camera and "Colonization."—A suggestion for detecting suspected "repeaters" and "colonizers." *Registry Clerk:* Raise your right hand! Now, do you solemnly—assume a pleasant expression, please—swear, etc.

Queries and Answers.

167 OTTO HENSEL writes: 1. "I have printed my negatives lately on the new aristotype paper, the result of which was very brilliant, the prints being covered with a beautiful gloss, which greatly added to their beauty. I found, however, that on mounting the prints all the gloss vanished and the photograph was very much like the ordinary, although I had done everything according to the direction. Kindly notify me in the columns of your unexcelled paper how this gloss can be re-attained without the use of a burnisher? 2. Please let me also know the title, author and price of a book which contains the latest progress in color-photography and its chemistry?"

167 *Answer.*—1. The paste should be applied to the print when dry, and the print should be rubbed down upon the mount rapidly and under a piece of stout paper. By moistening the print, the gloss obtained by squeegeeing it upon ferrotype or ebonite plate will be destroyed, and burnishing will become necessary. 2. We do not know of any book treating exclusively of this subject. The more recent reports on color photography are scattered through various photographic journals of this country and Europe.

168 WANT TO KNOW.—When speaking of atoms Mr. Burton, in his book on "Photographic Optics," refers the reader to an article on the subject in the "British Encyclopedia." Can you tell me in short what is said there?

168 *Answer.*—We advise our correspondent to go to one of the public libraries and read the article himself.

169 R. MUELLER inquires in regard to enameling?

169 *Answer.*—Sprinkle the surface of a glass plate with powdered French chalk, rub it evenly over the surface with a tuft of cotton wool, continuing to lightly rub it until the chalk is all removed, then coat the glass with the following:

COLLODION:

Soluble gun cotton	48 grains
Alcohol	4 ounces
Sulphuric ether	4 onnces

As soon as the collodion is well set lay upon it the print, previously soaked in a warm solution of one-half ounce gelatine in ten ounces of water, to which a few drops of glycerine have been added. Expel all air bubbles from beneath the print and squeegee it into absolute contact with the collodionized glass.

After drying, the print can be peeled off from the glass and the face will present a polish almost as high as the surface of the glass from which it has been removed. The print is then ready to mount, as follows: Moisten the face of the mount with a damp sponge and lay upon it the pasted print; rub down with a soft cloth and put under pressure to dry.

The addition of five per cent. of glycerine to the paste will prevent the print peeling off the glass as dries.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

BROOKLYN, N. Y., October 28, 1891.

Gentlemen: The firm of Bradfisch & Hopkins, is this day dissolved by mutual consent, Louis Bradfisch withdrawing.

Clarence E. Hopkins acquires all of the assets and assumes all the liabilities of the firm.

LOUIS BRADFISCH.
CLARENCE E. HOPKINS.

BROOKLYN, N. Y., October 28, 1891.

Sir: I respectfully announce to our patrons that I have completed improvements in the machinery, methods, and the organization of the workings of my factory, which enable me now not only to fully double the product of the late firm, but that the high character of our paper will be further enhanced thereby, and that in future all communications will receive prompt acknowledgement, and little or no delay will occur in filling all orders.

After this date a limited number of gross cabinet Omega "seconds" will be put up. These packages will be marked seconds and will be paper rejected from first quality. This will be suitable for proofs and plain prints, but not vignettes. There may be a few streaks, and small black spots, but no white ones. List price will be $140.

Thanking you for your past and asking your future favors,

I am, respectfully yours
C. E. HOPKINS.

Studio Changes.

Jewell, Ia. J. B. Sower has moved to Waseca, Minn.

Columbus, O. C. V. Hamer has sold out.

Vergennes, Vt. W. H. Sipperly has gone out of business.

Vicksburg, Miss. Messrs. A. L. Blanks & Co. have been succeeded by A. L. Blanks.

Yreka, California. Franklin & Howell are burned out.

Business Notices.

BARGAIN.—An Anschuetz Patent Instantaneous Camera, 3¼ x 4¼. Price, $5 each.
UNITED STATES PHOTO SUPPLY CO.,
2 Bond Street, New York.

WANTED—Good second-hand Camera Box with Holder about 22 x 30—for a 30-inch focus. Write, giving full description and cash price,
H. B. OWSLEY, 224 Fullerton Ave., Chicago.

FOR SALE.—One No. 2 Kodak, perfect order, loaded for one hundred exposures, transparent film. Price, $20. Address LOUIS CLARENCE BENNETT,
69 Center Street, New York.

FOR SALE.—A new No. 5 Kodak; seal never broken; list, $60; will sell for $47. Address,
SPOT CASH, care PHOTOGRAPHIC TIMES.

A LIVE YOUNG MAN (twenty-three) wants position with a photographic house, as manager, book-keeper, collector, salesman, or solicitor; understands the business from A to Z, and known throughout the trade; references from the Scovill & Adams Co. Address,
WM. PROCTOR, care PHOTOGRAPHIC TIMES.

WANTED TO BUY.—Second hand goods to equip a a gallery. KNAPP, 249 E. 124th Street, N. Y.

AT A REDUCTION.

FOR SALE.—Eastman Bromide Paper of the following sizes: 3¼ x 4¼, 4 x 5, 4¼ x 5½, 4¼ x 6½, 5 x 8 and 8x10, 25x30 and 30-inch of the C grade. Discount 30 per cent. from the list prices.
THE SCOVILL & ADAMS CO.

FOR SALE—An Idex 4 x 5 Camera, with Instantaneous Lens and Shutter, five extra Holders, cost, $20, will sell for $9. Terms cash. Address
JACKSON, care of Photo, PHOTO TIMES.

FOR SALE.—A great bargain. One 4 x 4 Gundlach new portrait lens, with Prosch Triplex Shutter; also one No. 3, Serries II, Steinheil lens; list $122. Will sell for $60. Address CLARK, care of the PHOTOGRAPHIC TIMES Office.

WANTED.—A live salesman, well posted in the stock trade. Address M., care GEORGE MURPHY, 2 Bond Street, New York.

FOR SALE.—Twenty-three volumes of the *Philadelphia Photographer*, from 1864 to 1885; *St. Louis Journal*, from 1877 to 1891; *Anthony's Bulletin*, from 1870 to 1889.
Address, MRS. HARRIET E. NORTH,
56 Genesee Street, Utica, N. Y.

BARGAINS.—A Berthiot or Goertz Instantaneous Lens, Iris Diaphragm for 4 x 5 Detective Camera.
GEORGE MURPHY,
No. 2 Bond St., New York.

ORDER NOW THE GREAT "AMERICAN ANNUAL OF PHOTOGRAPHY FOR 1892."

NEW GOODS.—Fine reversible back-view cameras with spring ground glass, rack and pinion focusing-screw, plate-holder and canvas case, 5 x 7 size, $12; 5 x 8 size, $14; 6½ x 8½ size, $16; 8 x 10 size, $22.50. Mail orders filled by
C. M. BROCKWAY, 33 Worth St., New York.

NEW SPECIALTIES.—A superior quality of ready-sensitized paper, also an extra fine grade of gold chloride for toning. The American, Omega, and Bradfisch Aristo papers, fine blue print and freshly silvered albumen papers. Mailed orders promptly filled by
C. M. BROCKWAY, 33 Worth St., New York.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

A COMPETENT STENOGRAPHER AND OPERATOR—Remington machine—desires a situation; is a good accountant, and can assist in office work, bookkeeping etc., etc.; good references from last employers.
Address, MISS CURRY,
146 East 81st Street. New York City.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
BUCHANAN, BROMLEY & CO., Importers,
Philadelphia.

Silver Paper
FRESH DAILY,
Blue Paper.
J. F. LLOYD, 845 Sixth Avenue, New York.

FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BARGAINS IN BACKGROUNDS.
Send for Special List.
GEORGE MURPHY, 2 Bond St., New York.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
F. F. BRAILLARD, JR.,
423 Broome St., New York.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NOW READY, MORAN'S BARGAIN LIST No. 38, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

THE PLATINOTYPE.
(PATENTED.)
Photographers can increase their business during the holidays by advocating the Platinotype.
Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.
WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS WANTED.

Position as general workman or assistant operator. Out of city preferred, R. Everett, 24 Manhattan Street, Manhattanville.

As operator and negative retoucher; willing to do printing and toning. First-class references. Frank E. Preble, 45 James Street, City.

A French gentleman, expert operator under skylight and in the dark-room, is open for an engagement. Has the best recommendation from first-class Parisian ateliers. Address Emile Lacas, 448 Sixth Ave., City.

First-class operator, equally well under skylight and in the dark-room, is open for an engagement. Refers to Geo. Rockwood, Esq. Address J. W. Brown, Riverhead, Long Island.

As printer; can also assist at retouching or operating. Address, Photographer, Box 216, Saranac, Franklin County, N. Y.

As first-class printer and general assistant; would like position where he can improve in operating; moderate salary. Address, "Printer," care of E. M. Jeroloman, 540 East 85th Street, New York City.

A young lady desires a situation in New York or Brooklyn as retoucher. Address L. J. E., care of George Murphy, 2 Bond Street, New York City.

A first-class retoucher and printer would like a position, city or country. Address Matyen, 312 18th Street, Brooklyn, N. Y.

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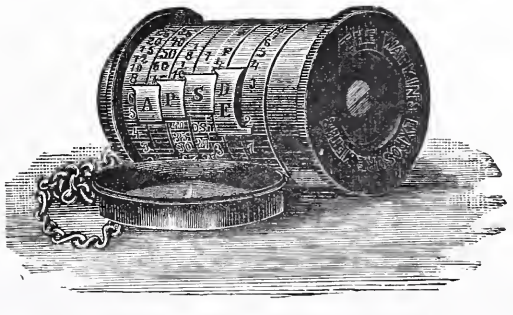
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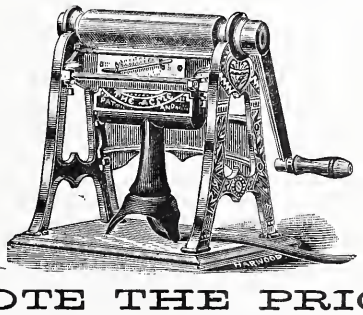
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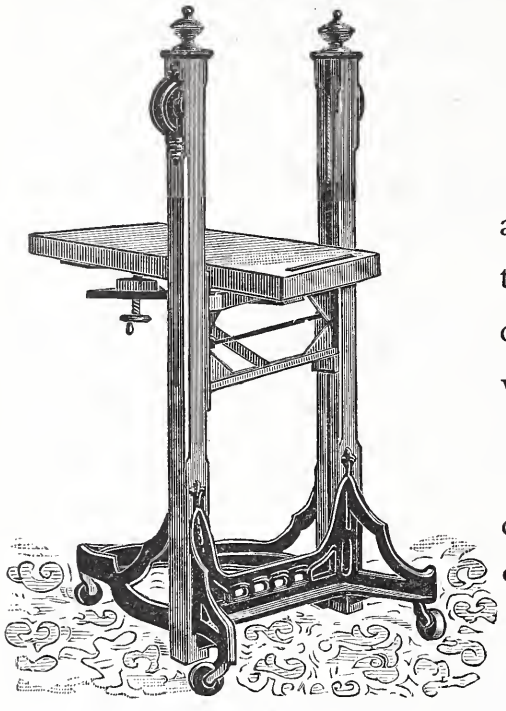
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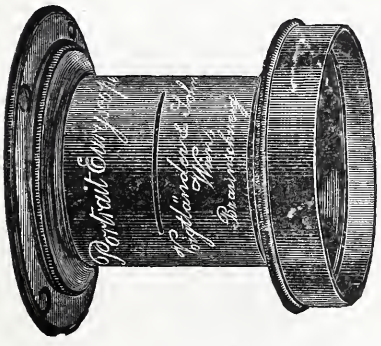
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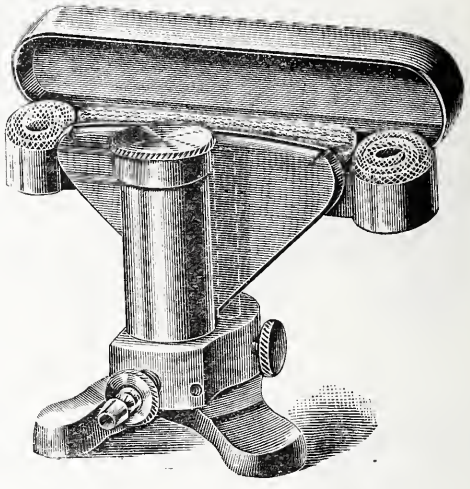
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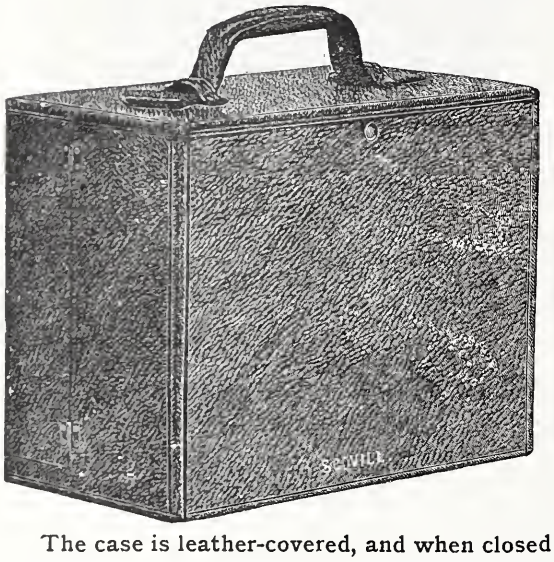
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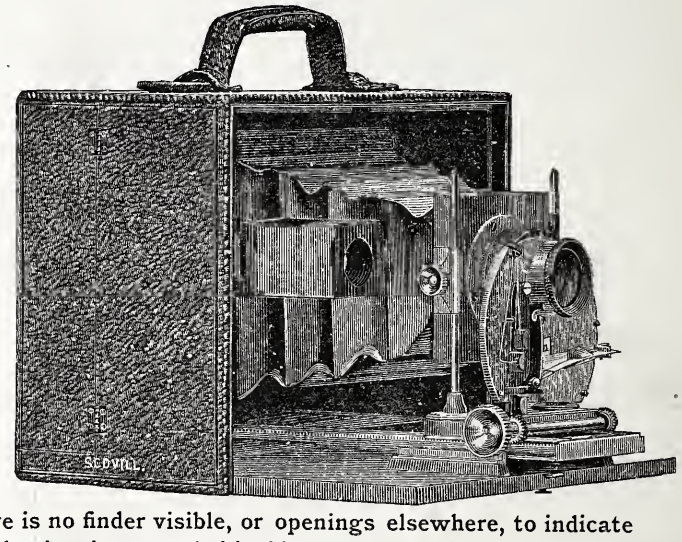
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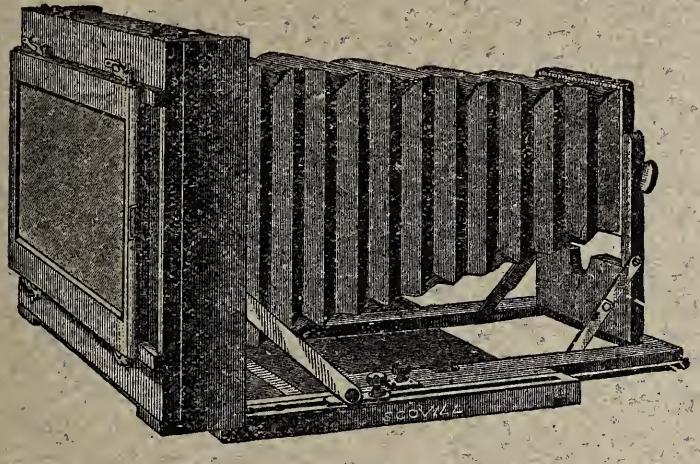
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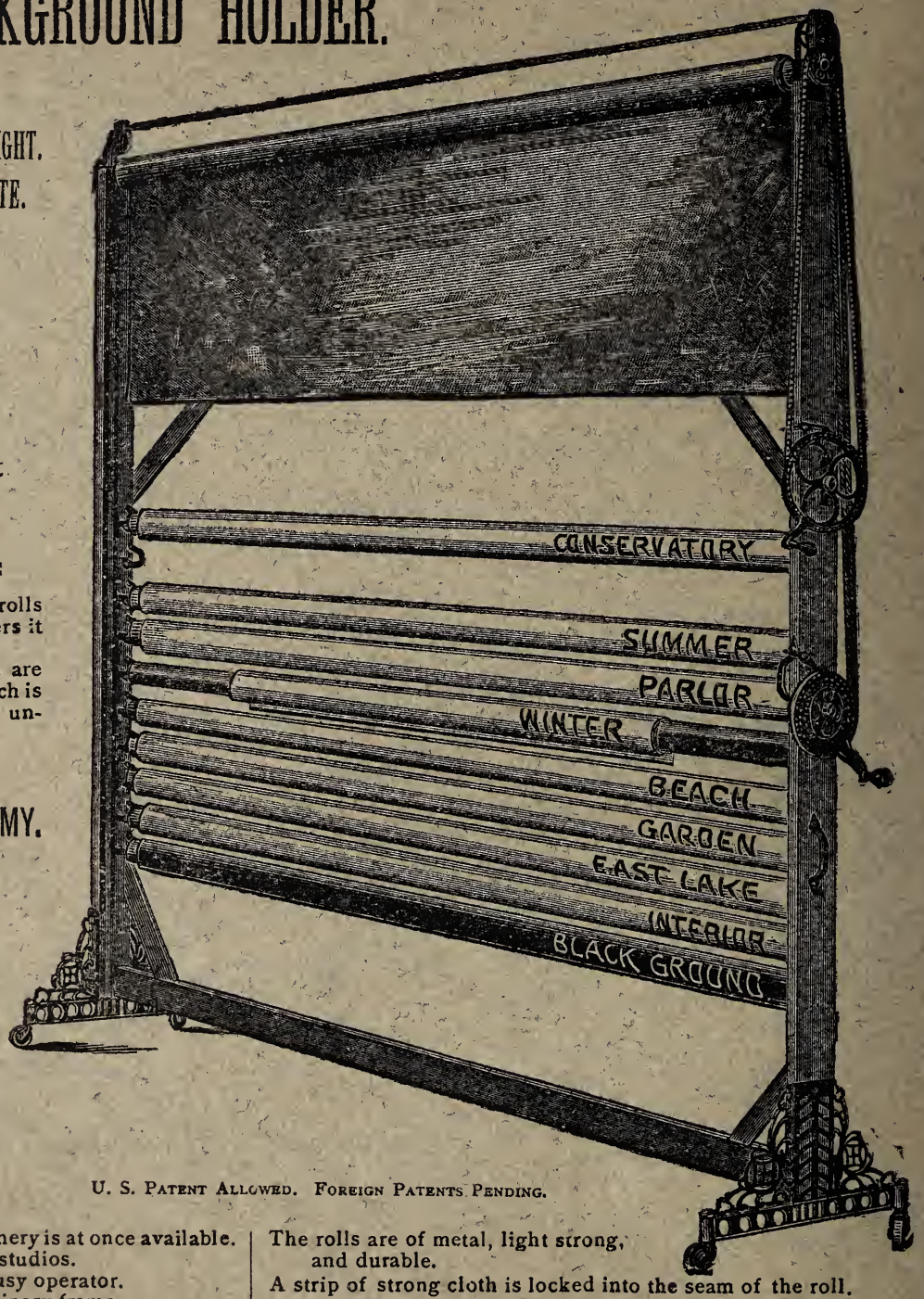
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A. P. WEBB, PHOTO. N.Y. PHOTO-GRAVURE CO.

STUDY OF A HEAD.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, DECEMBER 4, 1891. No. 533.

STUDY OF A HEAD.

WE present our readers this week with another excellent specimen of portraiture. This time the subject is not a celebrity, though as an illustration of excellent portraiture it is as instructive as the Gutekunst portraits of eminent Americans, which we have had the pleasure of late to present to our friends. This study of a head is from a negative by A. P. Webb, a professional photographer of Youngstown, O., and is especially graceful in pose and pleasant in lighting. The young girl's profuse and beautiful hair is skillfully treated and appears in our finished photogravure beautifully rendered. Altogether, this study of a head produces an agreeable impression upon the beholder without any straining after effect. It is an example of art concealed by art, which is the ideal we should all strive for in photography.

PHOTO-MERCUROGRAPHY.

(Second Paper.)

TRANSFER PROCESSES.

A PHOTO-TRANSFER is made in the ordinary manner, that is, by coating a sheet of paper with arrowroot or starch, then with bichromated albumen:

Clear albumen from eggs	480
Aqueous ammonia	3
Ammonium bichromate	12

After exposure under a cliché the print is inked with a good transfer ink, immersed in tepid water for a period of from 20 to 30 minutes, and finally rubbed with a rag to remove the non-acted-on albumen, when, the image standing out clear and sharp and the paper being dry, the proof is transferred on a zinc, or copper, or brass plate, according to the purpose desired. This done the plate may be treated in several manners, either to be printed lithographically or etched to obtain a photogravure.

In the first case the plate is slightly etched with ferric chloride, then amalgamated with a solution of mercuric cyanide.

In the other, the plate is simply amalgamated, and, after washing it with benzine to dissolve the ink, etched by nitric acid diluted at 3 per 100 of water. The biting-in is quite rapid, but for a certain period acts on the amalgam, not on the bare zinc. When the latter commences to be attacked the hollows are not sufficient. Therefore the plate is washed, dried, inked; and, this done, etched in, taking the usual cares until the hollows are deep enough.

If the cliché is negative, and if a type engraving is wanted with high reliefs, as it must be when the design is open, one must have recourse to the gillotage to finish the etching.

For intaglios the cliché should be a diapositive. However, a relievo can also be obtained by replacing the nitric acid solution by one of hydrochloric acid at 3 per 100 which attacks the zinc only. After a period of, say, 10 minutes, the plate is rinsed, dried, then di-mercurized by a solution of

Water	240
Nitric acid	12
Silver nitrate	2

This done the plate is rinsed, dried, inked, the operation afterwards proceeding as in the gillotage.

Instead of amalgamating the plate, it may be dusted-on with finely powdered mercuric cyanide, which only adheres on the ink; then, after blowing off the excess, the plate is set aside for five or six hours, then washed with benzine, and the image will be found formed by an amalgam. The plate can now be treated by one of the methods above described.

Engravings, etchings, designs in black crayons are reproduced by the following process, devised by Mr. Garnier:

Copyrighted.

The drawing is exposed for a few seconds to the action of iodine. The fumes condense only on the blacks, that is, the lines forming the design. This first part of the process is an application, or, more rightly speaking, the process itself discovered by Nièpce de St. Victor, and communicated to the French Academy of Sciences (comptes renders for October 1847, and March, 1853).

On its removal from the iodine box, the drawing is applied on a polished brass plate, and the whole placed under pressure to insure a perfect contact everywhere; the iodine unites with the metal, and by gently rubbing with a wadding charged with globules of mercury, the latter attaches itself to the iodized parts, the design, to the exclusion of the others, so that the drawing is reproduced by the amalgam. Now without any other preparation a lithographic roller charged with greasy ink is passed over and the ink only *taking* on the non-amalgamated parts the design stands out in white from the black-inked ground. To strengthen the layer of greasy ink and render it capable to resist the subsequent operation, the plate is dusted with powdered rosine and, when the excess is blowed off, heated to incorporate the whole. Then the mercury is dissolved by the nitric acid and silver nitrate solution.

Presently the treatment of the plate differs according as whether one desires an etched copper plate or an engraving to be lithographically printed.

In the first place all that is necessary is to bite-in with nitric acid or ferric chloride. In the other, the plate is coated with a thin layer of iron or of platinum* in an electric-bath, the deposit taking on the parts previously amalgamated, and where now the metal is bare, that is the lines of the design.

The utility of the iron or platinum coating is to permit one to amalgamate the plate on the parts corresponding to the whites of the design. The reader remembers that the amalgams repel greasy ink; so, that, as said before, proofs can be pulled out either lithographically or under the letter-press, the only care necessary is to re-amalgamate from time to time.

Proofs pulled from a photo-lithograph on stone or zinc, or from a plate engraved in intaglio or in releivo are transferred in the autographic manner by inking with the following mercurial ink:

Rosine	30
Soap of rosine	15
Yellow wax	20
Vaseline	20
Mercuric cyanide	15

The transfer is left into contact with the plate—zinc, copper or brass—for three hours, when the ink being washed off with benzine, the image will be found reproduced in amalgam.

For puffing proofs from zinc or copper engravings by this process one must first coat the plate with an electro depoist of iron or of platinum. The reason is abvious.

(*To be continued.*)

* The electro platinum bath consists of:

Water	100
Cautic patassa	10
Platinic chloride	1

A battery of two cells is sufficiently powerful to effect the deposit.

AN APPROVED PARA-AMIDOPHENOL DEVELOPING FORMULA.

We have continued our experiments with this promising new developer, and as the result of the various formulas which we have tried have adopted the following, which gives equally satisfactory results both in the making of negatives and positives on glass. The preparation of the developer is extremely simple. It is made as follows:

Dissolve in 2 quarts of distilled or rain water, which has been heated to about 150 deg. Fahr., 1¼ ounces (480 grains) of granulated sulphite of sodium; then add 2 drams of para-amidophenol hydrochlorate, and finally 1¼ ounces of granulated carbonate of sodium. Filter, and put up in well-stoppered bottles. This developing solution will keep indefinitely if ordinary caution is used, and may be repeatedly employed in developing.

As the use of this excellent developer increases the price of para-amidophenol decreases, as we predicted. Whereas, formerly we were compelled to pay twenty-five cents for only 16 grains of the agent, a half-ounce may now be obtained for only one dollar. Should para-amidophenol be as generally adopted, and enjoy as great a popularity as hydrochinon and eikonogen did in their time—and there is no reason why it should not—it is reasonable to suppose that its price will become even lower than those developing agents which are now passing out of use.

A MODEL STUDIO AND DARK-ROOM.

THE announcement was made last week that Mr. Hemment, the instantaneous photographer, had fitted up an approved dark-room in the Judge Building, New York City. This announcement was correct as far as it went, but it did not go very far; for Mr. Hemment has not only fitted up an

improved dark-room, but has also established himself in a commodious and well-appointed studio. His dark-room, which adjoins the studio, is lighted with electricity and is fitted with everything that a photographer could desire. It is large and well ventilated, and, by means of the electric light is not only illumined with a soft and pleasant light, but also is never heated thereby or made otherwise uncomfortable. The studio, which is really one entire corner of the immense Judge Building, on the top floor, is so divided that in reality it makes three rooms; one in which portraits may be made, having backgrounds and other necessary accessories; another, fitted up as a kind of office with a large table and desk, and a convenient arrangement for storing the negatives, while the third portion of the studio is a place for burnishing, mounting, etc. Mr. Hemment is to be congratulated on possessing so convenient, well-arranged, and commodious an apartment for his photographic headquarters.

THE MADDOX FUND.

It is better to help the living than to build monuments to the dead. Especially is this true when the living are in need of help. Dr. Richard Leach Maddox, the inventor of the gelatino-bromide process, is not only in great need of assistance in his old age, but is entirely deserving of it from the actual services which he has rendered. The spontaneity with which liberal contributions have been already made to the fund, though the circulars have not as yet been issued, indicates that this view is generally held by photographers on both sides of the Atlantic.

We announced last week the inauguration of the movement in England and called upon American photographers to assist in the good work. We are therefore especially gratified to report this week the prompt response which has been made to our appeal. John Carbutt, the veteran dry-plate maker of this country, starts the American fund with a contribution of $250. With his subscription for that amount comes these hearty words of appreciation: "I bear grateful testimony to Dr. Maddox as to the value of his discovery of the gelatine process."

John Carbutt.....$250 00

Mr. F. C. Beach, of the *American Amateur Photographer*, writes that he is in hearty sympathy with the movement, and will give it every support in his periodical.

Dr. Edward L. Wilson expresses himself similarly.

HOW DR. MADDOX DISCOVERED THE GELATINO-BROMIDE PROCESS.

In connection with the movement now in progress to collect a fund for the benefit of the aged and needy Dr R. L. Maddox, the discoverer of the gelatino-bromide process, it will interest our readers to know just how he made this important discovery twenty years ago. In reply to a letter of inquiry from Professor Jerome Harrison, Dr. Maddox describes the details of his discovery in the following letter, which we reprint from Professor Harrison's History of Photography.*

"Portswood, Southampton, August 19th, 1887.

Dear Sir: In your favor of the 17th inst., you express a wish 'to know more how and why my attention was directed to gelatine and silver bromide?' If you find the answer rather a complex one you must excuse it upon its three-fold character.

Firstly, the cost of the collodion, with the troublesome manufacture of the cotton. Secondly, health more or less affected by its constant use when working, as I was in my camera, a dressing-room, often at a very high temperature in the summer months; and thirdly, dissatisfaction with the dry methods for the photo-micrographic work upon which I was much engaged.

The first reason may be dismissed as of little moment when there was an adequate return upon the work done; but not so, when there was an absolute loss even in an amateur's point of view. The second reason was a more important one. Being often shut up for hours in the said camera, the temperature at full summer heat, I found the system completely saturated with the vapor of the collodion, so much so that it could be tasted in the breath on awakening in the night, and sleep was generally much disturbed and unrefreshing, while it was much needed to restore the nervous energy wasted by constant suffering, often very severe in character; moreover, there was an outcry in the house the collodion vapor unpleasantly pervaded every room in the house. The third reason was that I could find no satisfactory dry or sticky process that did not embrace the first two reasons, and add another of its own in the shape of additional time and trouble in the preparation of the plate.

These reasons set me experimenting, sometimes on paper, sometimes on glass, with vegetable matters as lichen, linseed, quince seed, and starchy substances as rice, tapioca, sago, etc.; and with waxy material as Japanese vegetable wax. Often I fancied I was just within the doorway when the door closed, and other plans had to be tried. All the literature I could find bordering the subject was searched, but it rather bewildered than enlightened. At last I turned to the animal series, and wasted many eggs and some little silver; then I went to the finest isinglass at about 20 shilling the pound weight, and the very first experiment led me to hope I was on the right track; something had to be altered, as I was using iodobromide in varying collodion proportions, and the isinglass did not appear to yield a sufficiently even surface in

* A History of Photography. By W. Jerome Harrison. New York: The Scovill & Adams Co.

spite of all kinds of filtering; yet confidence was felt that a vein had been struck. Search was now made in the house for a packet of Nelson's gelatine; this afforded a better surface, especially as the plates were dried generally on a hot 1-inch iron slab, and tested at once. Then came the mixture of isinglass and gelatine, but the advantages pointed to gelatine. The little plates were tried under a negative, then on out-of-door objects, but it was impossible to get some laurels depicted in anything more than black and white. I remembered that someone had stated that that the bromides were better suited than the iodides for foliage—now came the experiment of diminishing the iodides and increasing the bromide until it settled into bromide alone. Yet I was not satisfied; but experimenting went on so rapidly that often I did not wait to filter the gelatine before mixing the bromide of silver in it. Before this period, that talented experimenter, Mr. Carey Lea, had spoken of the use of aqua regia, and my attention was turned to it fancying that its use would decompose some of the gelatine and furnish the extra silver a chance of forming an organic salt of silver which might possibly improve the image. After working with this and getting more satisfactory results, various substances were mixed with the gelatine, as gum, sugar, glycerine, etc., which gave different tints to the developed negatives, aud it was soon that it only required further experimenting to put the gelatine into use, for some of the negatives were fairly plucky, and half-tones beautifully rendered, but, compared with collodion, the gelatine was slower, although it stood its ground with some of the dry processes.

Paper had not been neglected, for among the paper trials with the gelatine was one which I thought gave much promise, the tint on developing equaling much of the kind at the present day. This was obtained by the addition of a small quantity of arsenite of silver.

There was no thought of bringing the subject into notice until it had been lifted from the cradle. Soaking the plates before use, for, of course, I knew the useless salts were left in the gelatine, was noted down for trial; but at this stage, and while in the very hay-day of experimenting, there came an urgent appeal from my kind friend, Mr. J. Traill Taylor, to assist him, without delay, by an article for the *British Journal of Photography*, of which he was then editor, as he had been taken seriously ill.

Without a moment's hesitation, and thinking it would give my friend pleasure, the hurriedly written and fragmentary article that appeared in the September Journal, 1871, was forwarded to him, and proofs by sundry negatives were also sent, some of which, almost entirely defaced, my friend, Mr. W. B. Bolton, and I found three or four years since among the glass in the office at No. 2 York Street. Another pen had also come to the rescue, and my paper was deferred to the following weekly issue, when Mr. Taylor, with far-sighted judgment, noted the process had a future before it.

Health had now fairly broken down, rest was needed, so that very little further experimenting was done, and as there were other irons in the fire demanding attention the process was offered to a firm in Southampton, from whom I used to get my albumenized paper, but it was found there was no time to continue the necessary experiments to raise the rapidity and enhance its value. This was done at different stages by others, almost two years after I had freely given to the public what had cost me much time and abor.

The world has been benefited and I have been honored with a gold medal and diploma by the Juror's Committe of the Inventions' Exhibition. Do not for one moment suppose I ignore the work of other hands in *perfecting* the gelatino-bromide process, and thus giving it its world-wide value in all departments of photography, especially that far-reaching one of its adaptation to astronomical research. I am only too thankful to feel that I have been merely the stepping-stone upon which others have safely put their feet, though now and then there cropped up the old story of the prophet in his own country—let it pass, this is the jubilee year. I am grateful to those abroad and at home who like yourself have recognized the original claim of,

Dear sir, yours most truly,

R. L. Maddox.

THE DETAIL IN DEVELOPMENT.

THE advance in photographic science has been so great in the very few past years that even light itself, traveling with its inconceivable swiftness can be stopped, "caught on the fly," as it were, and held in check by the sensitive dry plate. Aristotle, who at times was disposed to be funny, proved that all things whether animate or inanimate moved. Equally paradoxically, photography proves all things to be at every instant and point of time at rest. The railroad train traveling at the rate of fifty or sixty miles per hour, is now stopped by the sensitive dry plate, and with correct focus and judicious development, has the detail and the sharpness it would have were it stationary. Even the electric sparks in the voltaic arc have been chained as they flew with incredible swiftness back and forth between the carbon points, thus proving the theory in regard to the arc the correct one.

Strictly speaking there is no such thing as instantaneous photography. It is the ability of the lens and of the dry plate to catch the object with the same or greater speed than with which it moves; or if the object be stationary, to allow the right quantity of reflected light to pass through the lens and out. This opening and shutting of the lens must necessarily be slower than the speed with which light traverses space. Were it otherwise no picture by any possibility could be impressed upon the plate.

Though we speak in the common language of things and say, we take this and that object, there is here an error more apparent than real. I believe that when we have arrived at a correct solution of this problem, the actual needs of photography will be better understood and appreciated. Photographically speaking we do not take the object

itself, but the light reflected from it. The object placed in juxta position between the lens and the light simply blocks out a certain amount of this light, according to the degree with which the light is reflected from it. Continue the exposure until the light between the lens and the object is taken together with all the light reflected from the object, and there is no picture. The object is impressed upon the sensitive dry-plate with the degree with which the color of the object approaches to or recedes from the red rays of the spectrum.

Did all objects reflect light uniformly with the perfection of the lens and of the dry-plate now attained, little care need be taken in developing the latent image. We could then flood our plate with the normal developer, and, when sufficiently developed, wash and fix it. Care must, therefore, be taken in developing to bring out some, and possibly all the detail in the shadows, at the same time leaving the shadows intact. Above all things in a picture I dislike to see an indescribable nondescript nothing an opaque spot with no detail. If this spot were the mouth to a cave it would be all well and good ; the surrounding objects would disclose to you and your friends what it was meant to be. It is therefore the right thing in the right place.

Judicious development will correct much of this. It makes little difference what kind of developer is used, so long as it is used with care.

I generally use Carbutt's formula given in the "American Annual of Photography," 1891, page 323 and No. 35. The amount of pyro used from the stock solution in this formula is 1½ drs. to 2½ drs., 4 ounces water, and 1 ounce alkali. I pour into the small graduate 2½ drs. pyro and in another graduate 1 ounce of alkali. I then take 4 ounces water, put it into another graduate and pour from the 1 ounce of the alkali into this graduate containing the water, only a small part of it, say ¼ ounce, and then pour it on the plate in the tray. I do not find it necessary even to previously wet the plate. I allow the plate to remain in this a minute or two, and then pour from the tray the diluted alkali solution into the empty graduate. I now add the least amount of pyro from the 2½ drs. previously poured out and flow this over the plate. If the image does not begin to appear in one-half a minute to a minute, I pour the solution into the graduate and again add a trifle more pyro. When the image begins to appear, it will come with greater rapidity than if the pyro were added first to the water and then the alkali. Let it proceed till the details are pretty well out, If now held to the light, it will be seen to have comparatively little density. Now add ½ dr. to 1 dr. pyro and leave it in the tray till it has gained the required density. This time will vary owing to circumstances. Do not pour the pyro into the tray, but form the solution in the tray into the graduate and then add the pyro, and then flow this over the plate. Use always the least amount of pyro possible to get the needed density. If there should not be enough detail in certain parts, the alkali can be added even up to the full ounce, if necessary, and poured over those parts that require it.

After washing the plate I usually place it in Carbutt's hardening and clearing bath given on page 324 in "The Annual," 1891 edition. Should the plate show a tendency to frill badly in the first washing water, I even then place it in the clearing bath and leave it there two to five minutes. I would advise leaving it in this bath the shortest time, enough to check frilling ; then wash it well and return it, if necessary, in order to clear it. Wash well after clearing and hardening the plate ; then fix.

I had till I used this method of developing difficulty in taking interiors, to get the required detail under large chairs, tables, and other articles of furniture. If I make the exposure ample for the principal parts of the room, I now have little or no difficulty. I at first tried this only with interiors, thinking that with an exterior there was enough light, and that by strengthening the pyro with the alkali and using it thus strengthened more on those sluggish parts, I could get the detail required. In this I was often mistaken. I now use this method entirely and find I get exactly what I want in the foreground, since I can, after the detail is fairly well out, get all the density I want by using pyro in greater excess here than in the background. The background is usually sufficiently exposed to take pretty good care of itself. The skillful operator generally holds the development in check here rather than urges it. The only case where the background would need any encouragement is when the light there is far inferior to that in the foreground, and yet this light might be equal to it, since distant objects reflect light with far greater intensity.

It will be noticed above, I take a small quantity of alkali and a small quantity of pyro. My object in doing this is to keep the amount of alkali and pyro as near the proportions as possible, given as normal. I do not believe in using pyro much in excess of the alkali nor the alkali much in excess of the pyro. If too much alkali is used you push the plate to detail and weakness, and the tendency to

frill the plate is thereby very much increased. If too much pyro, excess of density is the result, though you can stop the developement before density has gone too far.

Do not develop as some people take their medicine. It is out of reason to think because one pill will benefit, ten will bring a speedy and a permanent cure.

S. F. H. Hewit.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 589.)

CHAPTER X.

INTENSIFICATION OF COLLODION NEGATIVES (CONTINUED.)

Frederick Scott Archer publishes a Mercury-Hypo Process of Intensification in 1851.—Archer did three notable pieces of work in photography in the year 1851. First, of course, comes the collodion process itself, which he announced in *The Chemist*, in March, 1851. Next, he showed that pyrogallic acid was superior to gallic acid as a developing agent; and in the last month of the year he described a process of intensification which (slightly altered by the substitution of ammonia for hypo) is the most frequently employed of any at the present day.

In the *Athenæum* for December 20, 1851, p. 1350, Archer writes: "I wish to communicate a peculiar process of *whitening* and blackening the collodion pictures which may possibly prove interesting.

The picture being thoroughly washed in plenty of water, after fixing with hyposulphite of soda, is treated in the following manner: Prepare a saturated solution of bichloride of mercury in muriatic* acid. And one part of this solution to six of water; pour a small quantity of it over the picture at one corner, and allow it to run evenly over the glass. It will be found immediately to deepen the tones of the picture considerably, and the positive image will almost entirely disappear; but presently a peculiar whitening will come on, and in a short time a beautifully delicate white picture will be brought out.† The negative character of the drawing will be almost entirely destroyed, the white positive image alone remaining. This picture, after being well washed and dried, can be varnished and preserved as a positive; but, nevertheless, even after this bleaching, it can be changed into a deep-toned negative, many shades darker than it was originally, by immersing it, after a thorough washing, in a weak solution of hyposulphite of soda. In a short time the white picture will entirely disappear, and a black negative image will be the result. It is very singular that the picture can be alternately changed from white-positive to black-negative many times in succession, and very often with improvement to the picture. By the above process a most perfect white or a deep black negative picture can be obtained, quite distinct from each other."

In the French photographic journal, *La Lumière*, for 24th September, 1853, M. Disderi describes the application of the above process to the intensification of negatives on *paper*, which was accomplished (he says) with complete success.

Hunt wrote to the *Athenæum* (p. 23, for Jan., 1853), claiming that both Herschel and himself had already published a similar process to that described by Archer. The latter in reply (p. 87) states that he was unaware of Hunt's paper in the Phil. Trans.; and that his process, being upon collodion, was different to Hunt's, which was upon paper.

Maconochie "deepens" Negatives with Gold.—In the *Photographic Journal* for August, 1853, the following process, devised by Professor Maconochie, of Glasgow, is headed "Method of deepening Negatives." To 1 ounce of distilled water are added 3 grains each of ammonium chloride and gold chloride. The developed and washed (wet collodion) plate darkens rapidly when this solution is poured over it. In the same periodical, for February, 1856, Mr. Titterton recommends the gold solution to be applied to a plate which has already been intensified with mercury, if a *considerable* increase of density be desired.

The chemical change which takes place, is, of course, the substitution of gold for silver.

$$3Ag + AuCl_3 = Au + 3AgCl$$

Silver *and* Gold Chloride *produce* Gold *and* Silver Chloride.

Halleur combines Intensification with Fixing in 1853.—In the German text-book of photography written by Dr. Halleur in 1853, and of which a translation was published in England in 1854, we are told (p. 44), that in the calotype process "the picture may be fixed also by washing it with a solution of chloride of mercury (corrosive sublimate), rinsing it subsequently in water and letting it dry. This operation renders the picture perfectly invisible, and leaves, in the case of silver chloride paper, a white; in that of iodide paper, a yellowish surface. But the invisible picture may

* This was the name by which hydrochloric acid was formerly known.—W. J. H.

† Under the name of the "alabastrine process" such pictures became quite the vogue a few years later.—W. J. H.

be brought to light at any time, by washing with a solution of hyposulphite of soda, rinsing in water, and drying."

The collodion process is not mentioned in this work; it had probably hardly reached Germany at the time the book was written.

Maxwell-Lyte intensifies Collodion Negatives with Mercury and Potassium Iodide.—In the first volume of the *Journal of the* (London) *Photographic Society*, published in 1853, one of the leading amateurs of the day, Mr. F. Maxwell-Lyte, writes (p. 128): "I first of all whiten the picture by means of the solution of bi-chloride of mercury in hydrochloric acid, of which, according to Archer's method, I take one part to six of water; and then, after well washing the plate, I pour on a weak solution containing about 2 grains to the ounce of iodide of potassium; by this means a fine yellow picture is produced quite impervious to actinic rays."

The change from white to yellow, would, in this case, be produced by the conversion of the *white* salt of mercury (the bichloride) with a yellow salt (the iodide) according to the following equation.

$HgCl_2$ + $2KT$ = HgT_2
Mercuric Chloride *and* Potassium Iodide *produce* Mercuric Iodide
+ KCl
and Potassium Chloride.

The yellow compound obstructing especially the rays (blue and violet) which are most effective, the negative is intensified correspondingly.

Donny uses Mercury followed by Sulphuretted Hydrogen, in 1853.—After the appearance in the *Photographic Journal* for 1853 of Maxwell-Lyte's iodide process of intensification (which we have just described), a correspondent wrote (F. Hudson, p. 164) complaining of difficulties caused by the iodide of mercury being soluble in the other solutions employed. This called forth a letter (p. 186) from Professor F. Donny to the following effect: "During last Summer I converted into very dark black negatives a good many instantaneous collodion positives, by means of the following process: After development the picture is washed, drained, and immediately whitened according to Archer's method; being carefully washed again with rain-water and drained, but not dried, I cover it with a solution of

Gum arabic—by weight..... 1 part
Water—by weight..... 10 parts

Whilst this gummy covering is still moist, the picture is exposed, in a vertical position, to a strong current of sulphuretted hydrogen, which converts it rapidly into a black negative. The operation is then at an end, and the picture is set up to dry; nothing of the former positive appearance is to be seen on it, even when the glass side is turned towards the eye.

In this way black negatives of the utmost darkness are obtained, and will prove much more satisfactory than the yellow ones procured by the iodide process."

What is the chemical change which takes place by this method?

$HgCl_2$ + SH_2 =
Mercuric Chloride *and* Sulphuretted Hydrogen *produce*
HgS + $2HCl$
Mercuric Sulphide *and* Hydrochloric Acid.

It is hardly necessary to remark that the offensive smell of sulphuretted hydrogen ("rotten-egg gas") would deter most photographers from even testing this method.

W. Jerome Harrison.

(*To be continued.*)

PREPARING STRONG FERROUS OXALATE.

[Read before the Photographic Society of Philadelphia.]

THE strongest form of oxalate developer, made by dissolving ferrous oxalate in potassium oxalate, is not as much used as it deserve to be, the explanation of which, no doubt, is to be found in the very considerable amount of trouble entailed in the ordinary manner of preparing it. Thus, two distinct procedures are required; first, the precipitation of the ferrous oxalate; then the solution of it in the alkaline oxalate, which operation is not very satisfactory on account of the tendency to oxalation if heat be applied for any length of time. In trying to find a more convenient plan of getting a saturated developer I hit upon the following, which, I find answers every purpose.

By estimating the quantity of iron, actually in solution in different developers, and further by the point (volumetically), when precipitation takes place I found that I could not in any way make a developer which should permanently contain over about 0.65 grains of ferrous oxalate per 10.0 C.c. Acting on this datum I took a saturated solution of potassium oxalate, and to it added an excess of the oxalate, which would be sufficient to convert enough ferrous sulphate to make the 0.65 gramme of ferrous oxalate. The excess of the alkaline oxalate so added was gotten into solution by heat, when the iron was added. In this manner, a developer was produced without excess of anything, except the inert potassium sulphate formed in the reaction.

In comparing a developer so obtained with the

strongest form of the ordinary one (say that issued by the Eastman Company for their bromides), we find that the latter contains for every 10.0 C.c., 0.59 gramme ferrous sulphate, which quantity can only give 0.3 gramme of ferrous oxalate, as against at least, twice that in a saturated developer.

In practice the most convenient way to make up, is to dissolve the full quantity of alkaline oxalate at once in water, so that the formula reads:

Potassium oxalate.....330.0 grammes
Ferrous sulphate.....135.0 grammes
Water.....690.0 C.c.

Dissolve the oxalate by acid and heat, then cool until it just begins to be precipitated, then add the crystals of iron at once. After solution has taken place, cool completely as rapidly as possible (I place the containing vessel in cold water), and filter off into closed bottles.

In the above, we have 250.0 grammes of potassium oxalate which remain in solution, while the other 80.0 grammes are lost in forming the oxalate.

The quantiiy of water necessary to hold 250.0 grammes of potassium oxalates in solution is 760.0 C.c, but we need only take 680.0 C.c., since the 135.0 grammes of ferrous sulphate will furnish 60.0 C.c., the sulphate crystallizing with seven molecules of water.

The oxalate of iron is slowly precipitated after the bottles have stood some time, therefore it is better not to make up a large stock at a time. The formula is calculated to give an excess of ferrous oxalate of 0.15 grammes in each 10.0 C.c., most of which will remain for a short time in solution. The iron and potassium oxalate are balanced.

C. W. Miller.

PREMIUMS AWARDED AT THE SIXTIETH EXHIBITION OF THE AMERICAN INSTITUTE FAIR.

I DEPARTMENT.

Group 2.

Judges.—Dr. W. Stratford, T. J. Burton, David Johnson.

Photochrome Engraving Co., 218–222 Fulton St., for Photochrome Engravings, Medal of Merit.

American Design Co., 44 Broadway, for Designs for Art Manufacturing, Medal of Merit.

H. Pazelt, Ocean Grove, N. J., P. O. box 2,160, for Engraving on Glassware, Medal of Merit.

Group 3.

George G. Rockwood, 1440 Broadway, for Bromide Enlargements and Photographs burnt in on China, Medal of Superiority.

C. D. Fredricks, 770 Broadway, for Photographs Plain and in Crayon, Pastel and Water Colors, Medal of Superiority.

Frank Pearsall, 298 Fulton St, Brooklyn, N. Y., for Knarfograph Portraits, Medal of Superiority.

E. C. Dana, 872 Broadway, for Photographs, Medal of Superiority.

Rudolph Wilhelm, 624 Madison Ave., for Photographs, Crayon Portraits, Water Colors and Pastels.

James Englis, 2637 State St., Chicago, Ill., for Sepia Bromide Prints, Medal of Superiority.

G. Cramer Dry-Plate Works, St. Louis, Mo., for Gelatine Dry-Plates, Medal of Superiority.

American Aristotype Co., Jamestown, N. Y., for American "Aristo" Ready-Prepared Paper for Photographic Printing, Medal of Superiority.

Mrs. W. A. Robinson, 2292–2294 Third Ave., for Photographs, Medal of Merit.

N. E. White & Co., 62 Court St., Brooklyn, N. Y., for Colored Glace Portraits, Medal of Merit.

J. De Young, 815 Broadway, for Photographs, and Oil, Pastel and Crayon Portraits, Medal of Merit.

Rizzio Oil Pastelle Co, 20 W. 59th St., for Portraits in Oil-Pastelle, Medal of Merit.

A. Tanguerey, 63–65 W. 14th St, for Photographs, Crayons and Pastel Portraits, Medal of Merit.

William Shettle, 315 Madison Ave., for Pastel Paintings, Medal of Merit.

N Y. Photogravure Co., 137 W. 23d St., for Reproductions by Photogelatine and Photogravure Processes, Medal of Merit.

Group 7.

Judges.—Dr. W. Stratford, A. Cooper, Dr. J. R. MacGregor.

The Scovill & Adams Co., 423 Broome St., for Photographic Cameras and Apparatus, Medal of Superiority.

E. and H. T. Anthony & Co., 591 Broadway, for Photographic Apparatus and Supplies, Medal of Superiority.

Automatic Phototype Co., 146 W. 23d St., for an Automatic Phototype Machine, Medal of Superiority.

Hetherington & Hibben, Indianapolis, Ind., for the "Prize" Magazine Camera, Medal of Superiority.

Student Camera Co., 115–117 Spring St., for Cameras, Medal of Merit.

EXHIBITION OF THE SOCIETY OF AMATEUR PHOTOGRAPHERS AT THE 60th FAIR OF THE AMERICAN INSTITUTE.

Judges.—William Kurtz, Frank LeManna, Henry A. Ferguson.

LANDSCAPES.

H. M. Grisdale, 113 West 38th St., for Frames Nos. 38, 39, 46 52 and 53, Medal of Superiority.

Alfred Stieglitz, 14 East 60th St., for Frame No. 220, Medal of Excellence.

Hugo S. Mack, 69 West 46th St., for Frames Nos. 147, 164 and 166, Medal of Merit.

MARINES.

Chas. Wager Hull, 111–113 W. 38th St., for Frames Nos. 79, 87, 102 and 103, Medal of Superiority.

Ferdinand Ruppert, 901 Columbus Avenue, for Frame No. 188, Medal of Excellence.

PORTRAITS.

Chas. H. Davis, 316 E. 150th St., for Frames B. D. 2., Medal of Superiority.

INSTANTANEOUS.

G. W. Wundram, 316 Quincy St., Brooklyn, for Frame No. 273 P. & Y., Medal of Merit.

ENLARGEMENTS.

Louis H. Laudy, School of Mines, Columbia College, for Frame No. 110, Medal of Superiority.

Louis T. Brush, 27 W. 31st St., for Frame No. 11, Medal of Excellence.

J. Stedman Converse, 27 W. 38th St., for Frame No. 21, Medal of Merit.

GENRE.

Miss Emilie V. Clarkson, "Holcroft," Potsdam, N. Y., for Frames Nos. 17 and 18, Medal of Superiority.

INTERIORS.

Fred. Vilmar, 59 W. 51st St., for Frame 263, Medal of Excellence.

RECOMMENDED FOR HONORARY MENTION.

Edw. Leaming, 18 W. 38th St., for Examples of Different Methods of Sensitizing and Toning upon Various Papers, Frames Nos. 120 and 139.

A. L. Simpson, 1271 Broadway, Frame No. 205.

Chas. Wager Hull, 113 W. 38th St., for Cloud Effects, Frames Nos. 94, 95 and 96.

Correspondence.

THE BORAX TONER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I occasionally get a letter from some poor amateur in trouble, which I always reply to with pleasure, and I give the best advice I can to remedy the trouble complained of. One of these I have just answered, and as there may be others similarly situated, I will explain through your journal.

The complaint is that the borax toning bath recommended by me and published in THE TIMES a few weeks ago produces cold slaty tones. To this I answer that the character of the negative regulates in a great measure the tone of the print, a slow printer gives good toning prints, and a fast printer poor weak tones.

Another trouble is that the prints are not printed deep enough, or dark enough. This cause will produce cold poor prints.

If the baths acts quick it has too much gold; about fifteen minutes is about right; if slower than this add a little gold; if faster add water.

A borax bath will produce brown or blue-black tones, or a pretty purple can be gotten with it, and for velvety black tones it is excellent. To be successful make first a good negative; then print deep; the rest will be easy work, and the tones will be good.

Yours truly,

Thos. J. Bray.

WARREN, O., November 25, 1891.

Notes and News.

"The American Annual of Photography" for 1892 is out. Have you seen it?

Our Issue of December eighteenth will be a double illustrated Holiday number. Look out for it!

Mr. Duchochois' New Book entitled "The Photographic Image" is going off with a rush. Have you secured a copy?

Our picture next week will be another figure composition by Rudolph Eikemeyer, Jr., entitled "The Model's Pastime."

William Notman, the eminent photographer of Montreal, Canada, died Wednesday, November 25th. Particulars have not yet been received.

The Maddox Fund is meeting with a support on this side as prompt and hearty as we like to think is characteristic of Americans. Read the editorial on the subject in this issue.

The Pacific Coast Amateur Photographic Association, at the suggestion of its officers, has disbanded, but the California Camera Club continues to expand in every direction.

Frank W. Smith, representing the Harvard Dry Plate Co. was in New York last week.

Mr. John C. Hemment, the instantaneous photographer, has gone to Washington, D. C., to photograph the notables there with his hand-camera.

Miss Catherine Weed Barnes has accepted the editorship of the Photographic Department in *Frank Leslie's Weekly*. She will have an article on some practical subject once every month and invites correspondence.

G. Waldon Smith is now proprietor of seven photographic studios. He is entirely alone in all his enterprises, and is therefore entitled to all the credit for the success he is achieving in every branch.

Major MacMurray, U. S. A., the eminent amateur photographer, has been ordered on recruiting service to Binghampton, N. Y. He will undoubtedly find abundant food for his camera in this picturesque part of the country.

J. Wells Champney, the artist photographer, lectured on "Art in Photography" before the Kit-Kat Club of New York, Saturday evening, November 28th. His lecture was illustrated by interesting lantern-slides.

Photographing Speech.—Instantaneous photography has been used to record the movements of the lips in speaking, and by putting the photograph in a zoetrope a deaf mute can easily read the words, says a daily paper.

The Photographic Image.—"I value it very highly, and shall add it to my library with great pleasure," writes J. R. Swain.

Photographic Societies.

THE MONTCLAIR CAMERA CLUB.

AN amateur photographic society has been organized in Montclair, N. J., under the name of The Montclair Camera Club. At its first meeting, Tuesday evening, November 24th, the following officers were elected: President, Rev. F. D. Carter; Vice-President, A. W. Seward; Secretary, H. T. Thomas; Treasurer, W. L. Gutterson; Directors, T. G. Sullivan and Howard Ayres.

Rooms have been leased and a committee appointed to draft a constitution and by-laws for consideration at the next meeting. The club starts under the most favorable auspices with over twenty ladies and gentlemen as members.

YONKERS PHOTOGRAPHIC CLUB.

THE annual meeting of the Yonkers Photographic Club was held at Hawthorn Hall, Monday evening, Nov. 23d. The club has a membership of forty, and is in good financial condition.

The officers elected for the ensuing year are: George B. Ritter, President; J. Fowler Trow, Vice-President; Edward T. Sherman, Corresponding Secretary; Robert M. Reevs, Recording Secretary; Gustav G. Schulueter, Treasurer. Captain Bragg and George B. Wray, with the officers, comprise the Executive Committee.

Mr. Reevs received a vote of thanks for his recent generous donation of 15 volumes on photography to the Club.

TOLEDO CAMERA CLUB.

WITH the closing of the Bausch & Lomb Contest, the judging of the negatives, and awarding of the lens, the Toledo Camera Club made quite a social event.

Four hundred invitations were issued, and on Friday evening, November 20th, from 7 to 10 o'clock, the rooms of the club were crowded to their utmost capacity. Upon the walls were suspended boards of various designs containing prints made with the Clark Prize Lens. At one end of the room was placed a long table, in the center of which was the club slide lantern, around this were arranged about fifty hand-cameras labeled "Our Battery." At each end of the table were stacked the tripod cameras and club apparatus. In the center from the ceiling swung the prize lens and shutter, decorated with blue ribbons.

The dark-room, which was lit with red light only, was a continual source of attraction, as well as mystery, especially to the ladies. Freeman's Orchestra rendered music for the evening, and everything went merry as a marriage bell.

About 8.30 the President called the members to order, when H. F. Van Loo delivered the decision of the judges, which was based upon the following understanding of the contest, namely, the best negative of an instantaneous exposure. He stated that "their first duty was to determine what was instantaneous by the facts appearing in the negative." The answer given by the Bausch & Lomb Optical Company to the question is, "anything that shows 'life' in the negative." The word "life," from a photographic point, and as here used, means "objects in motion," and the same construction was put on its definition in this contest. The judges complimented the club on the merit displayed in the negatives submitted, and regretted that it was a contest of the lens, instead of the operator; and under the above ruling were obliged to lay aside some very fine negatives, which lacked the necessary proof of "life." The contest was therefore confined to negatives submitted by F. C. Wade, M. A. Martin and E. L. Griffith, and decided in favor of a street scene by F. C. Wade (size 6½ x 8½), said negative being larger, thereby showing greater capacity, equally sharp, and well defined, and of better printing qualities.

The judges were D. L. Stine, W. F. Van Loo, W. E. McRecine. Nine members competed. Forty-two negatives rendered.

Although but one year old the Toledo Camera Clue has fifty members, and promises to make one of the strong social organizations of the city. From beginning to end the Reception was pronounced by all a most successful one.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, November 11th, 1891, with Vice-President Joseph H. Burroughs in the chair.

The secretary announced the presentation to the society,

by Mr. J. C. Browne, of a copy of "Reports of Observations of the Total Eclipse of the Sun, August 7th, 1869, by Professor J. H. C. Coffin, U. S. N."

The board of directors reported the election of Messrs. Frank Bennet and Cyrus Chambers, Jr., as active members of the society. They also announced the death of Mr. Frederick A. Walker.

On account of the alteration and improvement to be made in the meeting room, the Annual Honor-Picture Exhibition will be postponed until January, and will be held under revised rules shortly to be issued.

Mr. Stirling offered a resolution to amend the by-laws, so that section 2, article II, shall read:

Active members shall pay the treasury $10 annually in advance. The fiscal year shall commence on the first of January, but members elected on or after the first of July, shall pay but $5 for the current year, in addition to the initiation fee,

Mr. Casper Miller read a paper on "Preparing Ferrous-oxalate developer." (See page 607).

Dr. Mitchell suggested that an addition of 10 to 25 per cent. of glycerine to the developer, would tend to retard oxidization, and it was very often used in developers of that character. Sugar was also used by some for this purpose. There was nothing in glycerine that would at all interfere with any photographic process that the developer might be used for.

Mr. James Wilson exhibited a new shutter for instantaneous or time work. It was copied from an English invention known as the Sargent shutter. It was very compact and could be placed even between combinations of the lens or over the hood. The slide had an up and down motion similar to that of the Newman shutter.

Mr. Earle exhibited several instantaneous views of athletes taken with a hand-camera, by Mr. Hemment, of Brooklyn. These he thought were remarkable for the wonderful brilliancy in the shadows and the amount of detail. They were 4 x 5, taken with a Prosch triple shutter, and for instantaneous work, he had never seen them excelled.

Mr. Earle also showed a new mount, intended to take the place of the ordinary card mount with its mat accessory. The specimens exhibited had a mat border with a plain smooth centre, on which a buff tint had been printed. They were made by the A. M. Collins Manufacturing Co., and were adapted particularly for platinotype, or other mat surface prints. The smooth centre was produced by severe pressure.

The chairman here announced that the competitive exhibition of lantern-slides from hand-camera negatives would be given, and appointed Messrs. Pancoast, Browne, Castner, as a committee to judge the slides.

After the exhibition, the committee decided that the honors of the occasion were due to set H, by Mr. W. H. Rau, Mexican scenes taken by him, with a Scovill hand-camera on glass plates, basing their decision on the difficulty of the subject and the technical quality of the pictures.

The slides selected to represent the society in the American Lantern-Slide Interchange for the season of 1891–2 were exhibited, after which the meeting adjourned.

Robert S. Redfield,
Secretary.

The Editorial Table.

The American Annual of Photography and Photographic Times Almanac for 1892. New York: The Scovill & Adams Company.

Promptly, as announced, the "American Annual of Photography" for 1892 reached us on the first of December, just as we were going to press. By the time this review reaches our readers the full number of the American edition will be in the hands of the public. We can give but a hasty review of the work in this issue, reserving for subsequent numbers a more adequate presentation of the book. But even the most cursory glance establishes the fact that here is a year book of photography which has never been approached before either in the practical value and interest of the contributed articles or in the number and excellence of the illustrations.

It contains 119 original articles on every conceivable subject connected with photography, and written by those most qualified to treat of the subject which has been chosen. Many of the articles are illustrated by full page pictures, especially where such pictures were required to enhance the value of the article, as in the case of the description of a new method of photographic reproduction, "How to Obtain Clouds in a Landscape," "Doubles," "Artistic Composition in Outdoor Photography," etc., etc. Indeed most of the full page illustrations are selected with a view to increase the practical value of the reading matter as well as to embellish the book, and they sustain a closer relation to the reading matter than is usual in books of this kind. Diagrams and other illustrative cuts are, of course, freely used through out the letter press of the volume.

The full-page pictures, while not quite so numerous as in the preceding volume of the "Annual," mark a distinct advance both in the pictorial and other qualities of the subjects, and in the excellence of the methods of reproduction. They thus serve the double purpose of embellishing the volume and exhibiting the advances which have been made, both in the reproduction processes now in general use and in the various departments of practical photography—pictorial and scientific. A full list of these pictures as well as the contributed articles and their authors will be found in the advertising pages. They are all of so uniform a standard of excellence that it is not easy to speak of any one picture or article in particular.

Several improvements in the arrangement and make-up of the "Annual" are to be noted. The standard formulas and useful receipts have been thoroughly revised and brought up to date. Explanatory preliminary notes have been added by an authority and many important additions have been made.

Advertisers have furnished not the least important part of the book in presenting to its readers a completer list of photographic materials, apparatus, and novelties than has ever before been collected in such a publication. This department, alone, while limited in extent, serves a useful purpose in recording the progress which has been made in the manufacture of photographic requisites. It also is embellished with an occasional full-page picture by a photo-mechanical reproduction process.

Though this popular year book has been so greatly improved in every way, its price still remains the same, in

paper covers only 50 cents; cloth-bound (library edition) $1.00. It may be obtained of any dealer in photographic supplies, or at the principal newsdealers and booksellers of the country.

The second part of Mr. James's "Chaperon" opens the *Atlantic Monthly* for December, and is another of the odd but clever stories with which Mr. James is fond of quizzing the public. This is followed by a paper (to be the first of a series of such articles) on "Joseph Severn and his Correspondents." The correspondents are Richard Westmacott, the painter, George Richmond, the painter, and others; but the most interesting letter of the series is from John Ruskin, giving his first impressions of Venice. One quotation is characteristic, and not without truth: "I saw," says Mr. Ruskin, "what the world is coming to. We shall put it into a chain armor of railroad, and then everybody will go everywhere every day, until every place is like every other place; and then when they are tired of changing stations and police they will congregate in knots in great cities, which will consist of club-houses, coffee-houses, and newspaper offices; the churches will be turned into assembly rooms; and people will eat, sleep and gamble to their graves." There are also quotations from Severn's own correspondence, and three or four letters from Mr. Seymour Kirkup.

A Useful Article.—One of the most useful things in a photographic studio is Weber's Liquid Opaque. For blocking out backgrounds or skies, and to cover large or small defects in the negative, we know of no better medium, for it is easily applied with an ordinary camel's-hair-brush, and if not diluted will form an absolutely opaque covering. As the coat of paint can be easily removed with a moist rag, the Opaque will doubtless be employed for the covering of the back of negatives for the purpose of preventing halation.

The Weber Company has also introduced a Liquid India Ink, an excellent substance for the marking and numbering of negatives. It flows readily and leaves the written character intense enough to print white on the negative. For retouching, the rendering of half-tone negatives into lines, preparatory for photo-engraving, and in fact for all purposes requiring a black and indelible pigment, Weber's Liquid India Ink is unsurpassable.

G. Waldon Smith, Boston's successful photographer, has been making a specialty of late of large groups. His posing is very natural, so that not only is the group as a whole life-like and pleasing, but each individnal composing it as a good likeness. We expect to show our readers an example of Mr. Smith's grouping in an early issue of this magazine.

Record of Photographic Patents.

463,284. Photographic Camera. Francis Burrows, Philadelphia, Pa.

463,557. Photograph Exhibitor. Carl G. Soderstrom, Denver, Colo.

463,630. Enlarging Camera. Chancy R. Jenne, Fort Wayne, Ind.

463,705. Carrier or Envelop for Photographic Films or Plates. Enoch W. Perry, Jr., New York, N. Y.

First Photographer (in dark-room).—"Say, Bill, let's have a smoke?"

Second P. (sarcastically).—"How can we, in a *dark-room;* where's your light?"

Queries and Answers.

176 F. N. H.—(1) Wants to know of a formula for a first-class ferrotype developer to produce clear whites? (2) Why is nitrate of baryta used in some ferrotype developers, and what is the price for the same per pound? (3) How can I remedy a newly-made ferrotype silver bath that has too much acid in it by mistake?

176 *Answer.*—(1)

FORMULA FOR DEVELOPER.

Water	64 ounces
Protosulphate of iron and ammonia solution	4 ounces
Acetic acid, No. 8	4 ounces
Yellow rock candy	½ ounce

(2) Nitrate of baryta in the developer produces whites of metallic luster. It costs 60 cents per ounce. (3) Neutralize with ammonia, heat to boiling point for several minutes, reduce to proper strength, filter and reacidify.

177 ANNA L. N. writes: I wish to ask some questions in regard to Omega paper. (1) I have no running water and am obliged to wash the prints in different changes. How long a washing, and about how many changes, is sufficient to make them permanent? Some of mine have begun *to fade.* (2) How many prints, 4 x 5, ought a bottle of toning solution to tone *permanently?* (3) The last bottle of toning solution I have used acts differently than all the others. The prints would not tone beyond a brown tone, although they were in the bath over one hour.

177 *Answer.*—Wash the toned Omega prints in from six to eight changes of water at intervals of 15 minutes. The fading of your prints may not be caused by insufficient washing—more probably it is the result of sulphuration consequent to excessive toning. (2) About eighty 4 x 5 prints. Do not examine the progress of toning by reflected but by transmitted light. When by looking through the print its color begins to turn purplish, arrest toning by copious washing. (3) We are inclined to think the fault is more in the paper than in the bath, unless its temperature is excessively low. We advise to prepare your own bath according to formula on page 194 of THE PHOTOGRAPHIC TIMES, Volume XXI.

178 A. L. K. writes: (1) I see you recommend when making lantern-slides in the camera the use of a piece of ground glass back of the negative; does this give better results than to point the camera at the sky, and how much does the ground glass lengthen the exposure? (2) What is used for 'blocking out' the background of statuary slides, and how is it used?

178 *Answer.*—(1) When pointing the camera directly towards the sky, it is not necessary to use a ground glass. If a sheet of tissue paper can be placed at such a distance from the negative that it can not copy sharp, and we prefer to use it instead of the ground glass because it absorbs but 5 per-cent of light, while ground glass swallows up a great deal more, probably as much as from 15 to 20 per cent. (2) The Scovill & Adams Company sell a new medium for the purpose: F. Weber's Liquid Opaque, 50 cents per bottle. It is doubtless the best opaque we have ever used, and is applied undiluted, with an ordinary camel's-hair brush.

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"A Cool Retreat," a descriptive article, by W. J. STILLMAN, of Rome, Italy, with two illustrations from negatives by the author.

An Illustrated Christmas Sketch, by Miss ADELAIDE SKEEL.

Articles on Practical Subjects

BY

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Rev. F. C. Lambert, M.A.
Andrew Pringle.
Thomas J. Bray.
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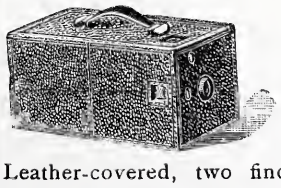
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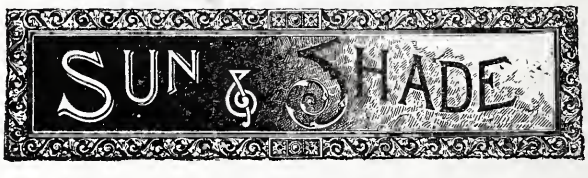
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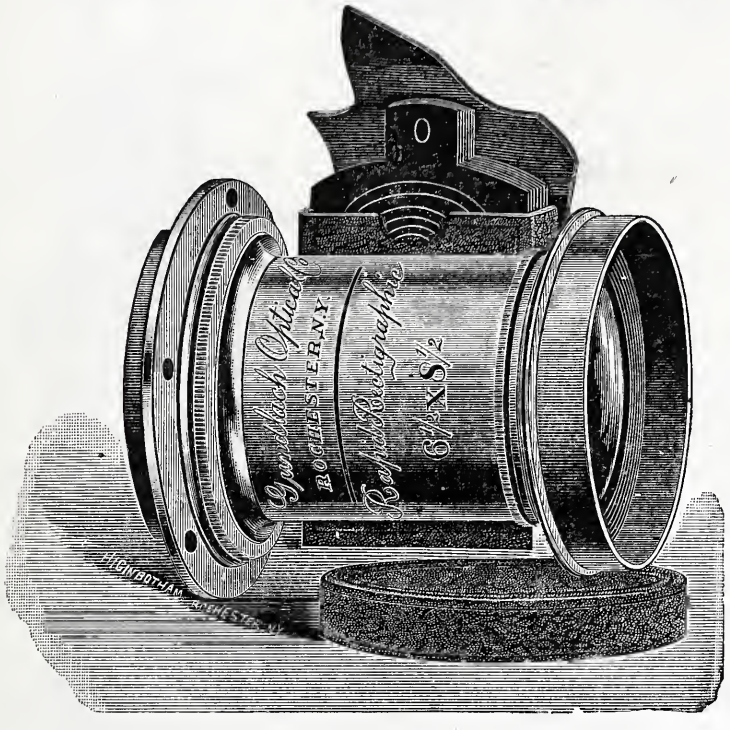
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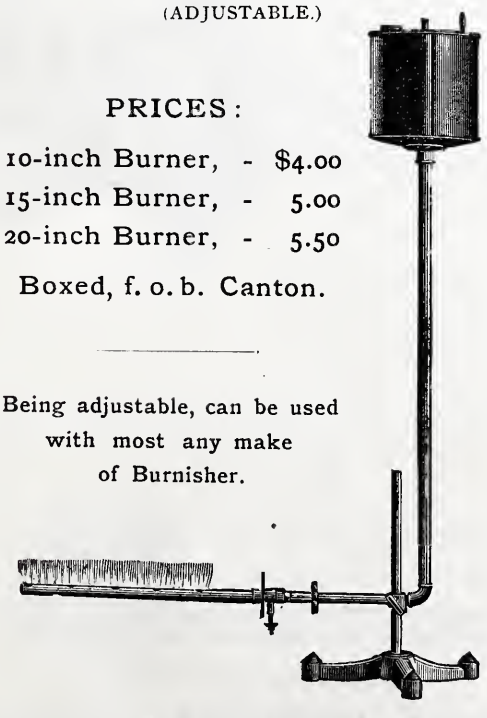
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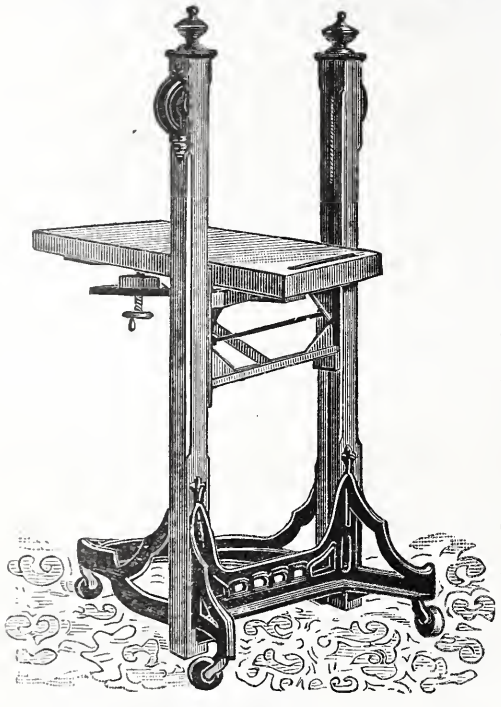
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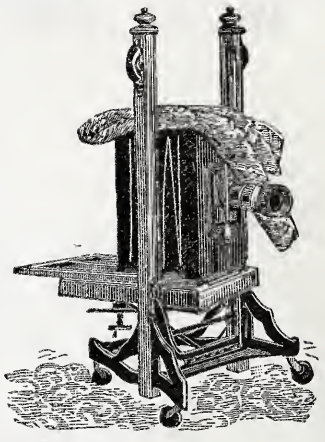
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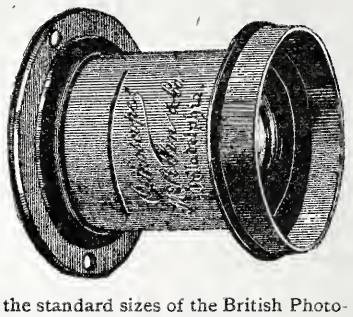
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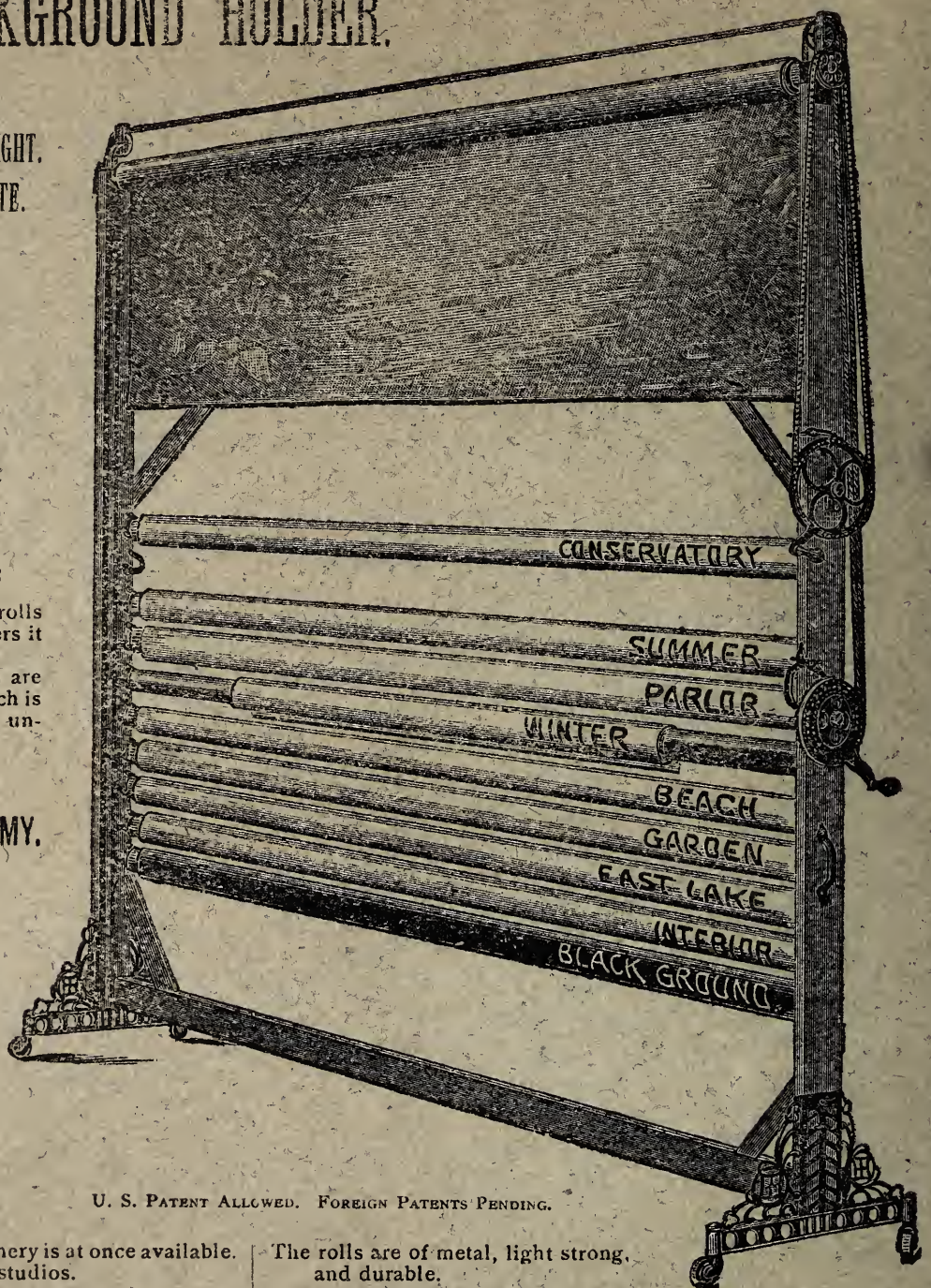
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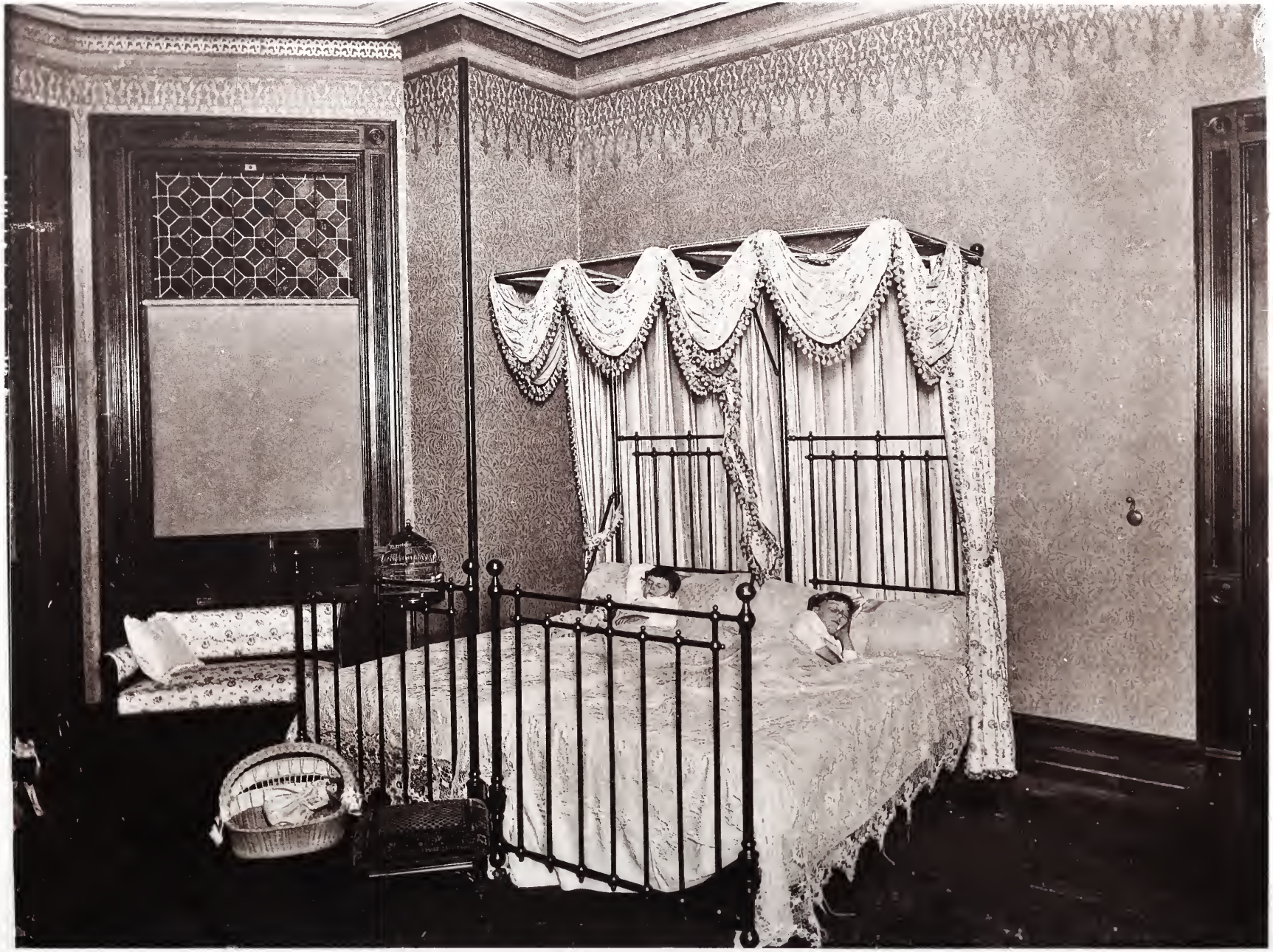
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THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, NOVEMBER 20, 1891. No. 531.

IN THE LAND OF NOD.

OUR illustration this week is from a flash-light negative by John C. Hemment, the noted instantaneous photographer, and was made by him in the old Rockefellow estate, of Greenwich, Conn., when it was the property of Mr. Warren E. Smith. The little Smith children depicted in their beds were fast asleep, and did not waken when the flash occurred. It was made by a Prosch lamp, using Scovill's pure magnesium with a little salt mixed with it. Carbutt's orthochromatic plate was used, and the negative was developed by Carbutt's eikocumhydro developer. The salt was added to the magnesium at Mr. Carbutt's suggestion, as it gives a somewhat yellow tinge to the flame, and thus makes it more influential upon the orthochromatic plate. An Albion Camera with a Morrison wide-angle lens was the apparatus employed in making this successful flash-light picture.

PHOTOGRAPHIC EXHIBITION AT THE AMERICAN INSTITUTE FAIR.

IV.

WE review this week the exhibits of professionals and those of the manufacturers and dealers.

Frank Pearsall, of Brooklyn, has an excellent display, consisting almost entirely of portraits and groups printed on mat surface paper. "Knarfographs" they are called by the exhibitor, and attract much attention not only by their artistic qualities, but also by the quaint manner of mounting. Their edges are not trimmed with a sharp blade, but are torn off and left ragged. Mounted on rough surface board they are quite odd in appearance, but pretty to look at.

Dana has a 17 x 20 picture, a female figure resembling very much in pose and general conception the well-known engraving, "Evangeline." To say it is an excellent piece of work hardly describes its beauty. Four or five others, half-busts and three-quarters, are equally beautiful. The boudoirs and cabinets are also very good.

Wilhelm.—"Hopfen und Maltz," "Gott-Erhalt's" is one of the best tableaux of this peculiar composite style we have ever seen.

Portraits of members of the American Brewer Association are formed into groups of three and five, from which the very pretty *tout ensemble*, surrounded by appropriate designs is arranged.

An 11 x 14 portrait of Carl Schurtz is very fine. The smaller pictures are not so good.

George Rockwood departs this year from his usual way of exhibiting photographs, and represents but two branches of the art-science. His bromide enlargements of enormous size are excellent in every particular, and especially those from negatives by Messrs. Charles Wager Hull and Alfred L. Simpson.

But more important to the progressive photographer is the display of magnificently-colored photo-ceramics, showing plainly that this exhibitor is always in the front rank of the profession. Photo-ceramics have never before been exhibited in the American Institute. We congratulate Mr. Rockwood on the success he has attained in this interesting branch of photographic work.

Charles D. Fredricks exhibits mostly life-size enlargements finished in oil and crayon. The legitimate plain photograph is but scantily represented, but those which are shown fully sustain the reputation of this veteran exhibitor.

De Young exhibits some very good portraits in the various popular styles, and plain photographs of more than average excellence.

The New York Photogravure Company shows decided progress in photo-copperplate engraving and printing. The portrait study after Champney, and a reproduction after Maurice Courant are especially beautiful.

Smaller pictures of 8 x 10 and lesser dimensions,

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published to some extent in *Sun and Shade*, are attentive to connoisseur and to the general public.

Mrs. Robinson's photographs of various styles and sizes are of more than average merit. Pastels and crayons are also good and are nicely finished.

Professor A. E. Willis, in connection with his phrenological work, exhibits a large number of very interesting photographs. Those made by himself certainly rival many of the others.

Tanquerey has a very large and elaborate exhibit of variously finished portraits. Among them is a study of a female head, which, in pose, lighting and color is an excellent piece of work.

His cabinets and other plain photographs are good.

G. Cramer has one of the very best exhibits in the entire hall. He does not attempt to show in this extensive display the technical or artistic ability of any particular photographer, but merely what his famous gelatine emulsion plates are capable of doing in the hands of clever operators.

Six or eight portraits of 18 x 22 size, unfortunately without the makers' name attached, command the highest admiration of the visitor, for they are literally perfection so far as the plates are concerned. Two Niagara views may be classified similarly. Jackson, of Denver, excels, as usual, with his large landscapes. The majority of the photographs of this collection are made by masters in photography.

Mr. Cramer always keeps pace with the progress made by American photographers.

W. E. White shows enameled water-color photographs, made in the style of the Jeremiah Guerney picture.

Photochrome Engraving Company shows photographic reproductions in from three to six colors, printed from high relief plates on the ordinary type press.

Such work has not been exhibited here before. We may consider it a real progress in photochrome printing.

F. A. Ringler & Company exhibits photogravure plates, steel-plated and in copper, galvano-plastics in various metals and high relief reproductions of autographs. Accurately made and of superb finish. "Immortalize Baby's First Shoe" is a part of the exhibit, which will prove highly attractive to ladies, and consists of tiny shoes, metallized by galvano-plastic process in brass, silver and gold.

In Wm. Shettle's pastel paintings we notice, particularly, the portraits of Walt Whitman, and of Commodore Vanderbilt. But the acme of the collection is the study of a female head in a beautifully warm color. Its generally fine artistic treatment resembles much "The Flower Girl," by Peter Gray, in the Marshall O. Roberts collection.

The Rizzio Oil-Pastell Co., shows portraits on canvas, silk and millboard, painted in the peculiar style of the artist, but done with much taste.

The "Nickel in the Slot" machine is again at work, but as the tintypes made by it are no better than those of last year, we cannot report it as progressive.

The Student Camera Co. exhibits a nicely made and very cheap photographic outfit for quarter-size plates.

E. & H. T. Anthony & Co. have an interesting exhibit of their own and Blair photographic apparatus. Our attention was attracted towards an excellent posing-chair, with rests and supports for head and arms, and guides to regulate the position of the subject; but we could not help asking: "Is such complicated posing arrangement still needed in these times of rapid exposure?"

The "Kammerette," a pretty little instrument, with a very clever roll-holder ingeniously situated, is shown; also the "Hawkeye," the "P. D. Q.," and a variety of other cameras for all kinds of work.

The Scovill & Adams Company. In speaking of the important exhibit of this firm we cannot do better than reprint the carefully written report which appeared in the *New York Recorder* of November 1st; and with this our review will be brought to a close:

"This very reliable firm is almost as well known to New Yorkers as the American institute itself. Their very interesting exhibit is almost the first thing that greets the eye of the visitor to the fair after entering the main hall.

"Every year novelties are introduced by the Scovill & Adams Company, who have manufactured photographic goods ever since the first daguerreotypes were made. This year they have brought out the "Henry Clay" camera, which does not in the least look like any other camera, or in fact like a camera, but which, nevertheless, is one more complete and with greater advantages than any other camera presents.

"There are camera makers who have but one style to show—one string to their instrument, and that is twanged *ad nauseam*. This company have in their salesrooms, 423 Broome Street, New York, a greater variety from which to make selection than can be found anywhere else. Noticeable among the cameras recently constructed are the antique oak 'Knack' camera, used by numerous press representatives in this city, the 'Waterbury,' and the 'Mascot' cameras. You are invited to call

and see them and many other styles. Their collection of photographs is a handsome one, and in the books on photography which they publish may be found many things instructive and interesting to all, whether they be experts or novices in this fascinating art. The Scovill & Adams Company have secured the first prizes at the Institute Fair for many years as well as in all other exhibits of photographic apparatus where they have been in contest, and it is safe to predict that their success will be equally as great in the future as it has been in the past."

THE "PHOTOGRAPHIC" EFFECTS OF LIGHTNING.

In a recent number of the PHOTOGRAPHIC TIMES is a quotation from some newspaper, which gives an account of markings found on the body of a man struck by lightning, attributed to some "photographic" action of the lightning flash, by which the image of the tree under which he stood is said to be reproduced.

It is usual to find such stories in newspapers, and it is also a legitimate function of a journal like THE TIMES to record them, as they occur; but it seems as if it ought to go a step farther, and take every opportunity to correct the wrong notion, in the interests of "photographic accuracy."

That markings of some sort are to be found in such cases, is indisputable; but their cause is in no way photographic, but purely electrical. "If a thin sheet of window-glass, about four inches square, be held between the knob of a charged Leyden jar, and the discharging rod, the discharge will pass over the surface nearest the jar, turn over its edge, and so get to the discharging rod. On holding the glass up to the light, no trace of the discharge will be seen; but on breathing on the glass, we get a remarkable, ramified figure, consisting of a trunk, from which proceed a number of branches, covered with minute spray, the whole presenting a striking resemblance to a tree; ramifying feelers sent out by the electricity to prepare the line of least resistance along which the principal discharge takes place. These are the lines which produce the sensation of cobwebs drawn over the face, which sailors describe as the forerunners of a ship being struck."

The quotation is from an article by Professor Tomlinson, in the *Photographic News* of September 14, 1861. Now the Editor of the PHOTOGRAPHIC TIMES could do effective missionary work by referring at least to his readers to this explanation of the cause of the markings noticed; and the cause of photography would be advanced if he could secure and publish illustrations of these markings. There are now so many physicians who are photographers that they might easily secure a photograph of cases coming under their observation, and so confer a lasting benefit.

C. W. Canfield.

THE HAND CAMERA AND THE FUTURE.

PHOTOGRAPHERS, amateur and professional alike, have sneered at the hand camera. Long articles have been written to prove that at most it is little better than a toy with which to pass an idle hour. But did it never occur to those who are so ready to decry it that possibly we have not yet reached the limit of photographic possibilities. Is there anyone bold enough to declare that the limit of sensitiveness in our plates has been reached, or that developers will not yet be discovered that will give a fully developed image on plates that with the developers we use to-day would show nothing. Lenses, too, have been improved. Have we reached the limit? I think not.

That the hand camera has been abused I admit; that the percentage of failures is away ahead of time exposures no one can deny, and that it is about the very worst style of camera for an amateur to buy who intends to do more than "press the button" must be acknowledged. But I believe the future has some wonderful surprises in store for all of us, in which the hand camera will play a prominent part.

To the invention of breechloaders is due the disappearance of the buffalo from the Western prairies, and nothing now remains to remind one of his existence but bleaching bones that the half-breed hunters are industriously gathering and shipping East by carloads. The antelope have followed the buffalo, and but for the close watch kept on the former in the National Park, I do not believe there would be a dozen representatives of the species on the North American Continent to-day. But the desire to hunt big game remains, and here I believe the hand camera will play a prominent part. It is unlikely that a paragraph something like the following will appear in the papers some fine morning, A.D. 1900?

NATIONAL PARK, September 10th.—The Presidential party arrived here last night and pitched their camp close to where the guides thought buffalo would likely be found. A grand hunting party was organized this A.M.,

and shortly after daylight the scouts signalled that a small herd was on the open ground close to the river. The party succeeded in getting within a half mile of the game without being discovered. Then the signal was given and a dozen riders dashed at them. The run was a short one, but one gentleman succeeded in cracking half a dozen snaps, which on being developed showed five first-class negatives. One in particular was extremely interesting. It represented a magnificent bull charging down on the hunter. In looking at the picture one can almost imagine he sees the fire flashing from the terrible eyes half hidden under the matted hair. It must have required great nerve on the part of the hunter to have stood his ground as he did, for on measuring the size of the picture and calculating the distance of the animal by the focus of the lens the buffalo could not have been more than thirty yards distance when the picture was taken, and arrangements have been made for telegraphing the pictures to the illustrated dailies as soon as the negatives are dry.

This may appear far-fetched, but to the real sportsman—the man who is looking for sport and not hunting for the pot—would there not be just as much pleasure in photographing a buffalo as in butchering it? There would be just as much risk, too, and that is where a good deal of the sport would come in.

The daily press already realizes the value of illustrations. A picture will often tell more than a column of reading matter. The day is not far distant when illustrations will be the rule with the great dailies, and not as now the exception.

Imagine a newspaper correspondent riding in a cavalry charge on the guns of an enemy, or dashing in the last rush with the infantry upon the earthworks of the foe. Would not a picture under such conditions, even if it did not take in the whole field, be valuable? Supposing we had hand camera pictures of some of the incidents of the great civil war, would they not be invaluable, if for nothing but to settle some disputed points? A correspondent might make a mistake—the camera could not.

Let me give an illustration that came under my personal notice. During the rebellion in the Canadian Northwest, in the Summer of '85, I was present as a newspaper correspondent at the engagement as "Cut Knife Creek." After seven hours' hard fighting our troops withdrew, having failed to dislodge the Indians and half-breeds from their position. I and two others left the field just before the orders to retire was given. We crossed the creek and climbed to the bluff bank sixty feet above where we had an uninterrupted view of the field. Our line was convex in formation with the artillery and gatherings in the center. As the bugles sounded the retire the red-coats withdrew, leaving the blue-coated artillery to look after the "red-devils." Next, the artillery limbered up and galloped to the rear, while the infantry swept with a storm of lead the brow of the hill three or four hundred yards in their front. It has been stated since that the artillery did not limber up but retired with the "prolonge"—that is, with the trail of the gun on the ground ready to fire. Another disputed point is the point of the creek where we crossed on going in and on coming out. A hand camera would have settled both of these questions beyond doubt.

How I longed for even my little 4 x 5 outfit that I carried to Hudson's Bay the year before. My position was a splendid one to get a picture as well as a photograph. As we stood on the hill with the sky for a background we made a tempting target, and were soon glad to get into a buffalo wallow. Then a half battery of mountain guns galloped up; unlimbered and opened over the heads of our troops as they were crossing the creek. It was the chance of a lifetime and I missed it, for, although I had sent for my camera some weeks before, my letter miscarried, and it was not shipped.

Every year witnesses a steady improvement in our beautiful art. Like everything else, of course, it has its limits; but that limit is yet a long way off, and to those who are interested in "snap shots," I say keep at it, and, wherever you go, take your camera with you.

William W. Fox.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 566.)

CHAPTER IX.—*Continued.*

Intensification of Collodion Negatives.—The method of intensification just described applied but seldom in the case of calotype and albumen negatives, but became quite a constant practice in the development of *collodion* negatives. The great text-book of the worker with collodion was "Hardwich's Manual of Photographic Chemistry," of which nine editions appeared between 1855 and 1883. In the first edition stress is laid on a clear understanding of the word *intensity*, which "relates to the appearance of the finished photograph, independently of the time taken to produce it; *to the degree of opacity of the reduced silver*, and the extent to which it obstructs transmitted light."

The collodion plate consisted of iodide of silver in collodion; but this was exposed wet, and covered with a solution of nitrate of silver. The action of light produced a change in the silver

iodide; but development was effected by pouring over the plate either a solution of pyrogallic acid, or one of ferrous sulphate. The result of this was to decompose the nitrate of silver, and the metallic silver was then *deposited upon* the image produced by light.

Thus a collodion plate was developed from *above;* and the picture could often be seen to stand out distinctly in fine relief upon the surface of the collodion.

But the layer of silver nitrate upon the surface of a collodion wet-plate was very thin (for the plates were drained after removal from the nitrate bath, and before exposure), and its silver was soon exhausted. The developed image was consequently too weak and thin. Hardwich (1855) then recommends the following intensification: In development "the pyrogallic acid is to be used alone, until the image has reached its maximum of intensity, which it will usually do in a minute or so, according to the temperature of the developing-room. The plate may then be examined leisurely by placing it in front of, and at some distance from, a sheet of white paper. If it is not sufficiently black, add about 2 drops of silver nitrate solution to each drachm of developer, stir well with a glass rod, and continue the action until the requisite amount of intensity is obtained."

Intensification in this way might really be styled "re-development," or "continued development." It was effected *before* the plate was fixed.

Intensification of Collodion Negatives after Fixing.—In the second edition of Hardwich (1855), he adds to the paragraph quoted above: "When there is any disposition in the plate to *fog* towards the end of the development, it may sometimes be obviated by fixing with cyanide of potassium as soon as the "development proper" is complete, and then after a careful washing intensifying with pyrogallic acid and nitrate of silver in the usual way."

In the third edition (1856) of this classical book, the subject is put in a very masterly way: "*Mode of Increasing the Intensity of the Negative Image.*—For the sake of clearness, we establish two stages in the development of a collodion negative; first, the *development proper*, or bringing out of an image distinct in all its details by transmitted light; but pale and comparatively translucent; second, *the development by precipitation*, as it has been termed, by which the image is rendered darker and more opaque.

The strengthening of a feeble image is effected by pouring over the plate a mixture of pyrogallic acid and nitrate of silver. These two substances decompose each other even without the aid of light, and a deposit of silver is formed *which settles down upon the image and adheres to it.* * * * *

"The collodion image is sometimes spoken of as being *within* the substance of the transparent film. This, however, is incorrect; it is really *upon* the surface of the film, and is formed by a *superposition* of metallic particles rather than by a penetration inwards. The mere act of varnishing the plate will often prove this to be the case; the elevated lines of the impression being seen to form an obstruction to the flow of the spirit, and so to produce a series of permanent ridges at various parts of the plate."

This is one of the main points of difference between the *gelatine* and the collodion processes. In the gelatine dry-plate, the silver image is *within* the film, and forms from the surface *downwards.* But silver is *added* to the collodion film during or after development to strengthen the image (which is upon the surface only), and this added silver builds up or intensifies upon the delicate surface-image which has been produced by light.

In the last (ninth) edition of Hardwich, which was published in 1883, we get a masterly summing-up of the whole matter as follows (page 128): "*The Second Stage of the Development.*—This consists in strengthening the image first formed, by an additional deposit of silver. Take a sensitive collodion plate, and having impressed an invisible image upon it by a proper exposure in the camera, remove it to the dark-room, and pour over it a solution of pyrogallic acid. When the picture has fully appeared, stop the action by washing the plate with water. An examination of the image at this stage will show that it is perfect in the details, but pale and translucent.

Now take the plate and treat it with pyrogallic acid to which fresh nitrate of silver has been added; immediately the picture will become much blacker, and will continue to darken even to complete opacity, if the supply of nitrate be kept up. The same result may be obtained after the iodide of silver has been removed from the plate by hyposulphite of soda or cyanide of potassium; and in such a case it is evident that the additional deposit upon the image must be produced from the nitrate of silver, and not from the iodide of silver. Observe also, that this additional deposit *forms only upon the image*, exhibiting no affinity for the unaltered iodide upon the part of the plate corresponding to the shadows of the picture, but attaching itself in preference to those parts already blackened by the developer.

The second stage of the development, in which

a feeble image is strengthened and rendered more opaque, is a process bearing a close resemblance to the growth of a crystal in a saturated liquid by aggregation of fresh particles; and after the picture has reached its full density, a series of elevations may often be seen upon the plate, corresponding to the lines of the image."

The chemistry of intensification with silver is identical with that of development. The silver is reduced to the metallic state, and is attracted by and deposited upon the already existing image. The method is—as we have already pointed out—only a *continuation* of development.

W. Jerome Harrison.

(*To be continued.*)

TONING AND INTENSIFYING BY URANIUM SALTS.

[Presented at the November 10th meeting of the Society of Amateur Photographers of New York.]

The method to color or to intensify negatives by means of uranic salts is by no means a novelty in photography; it was practiced in the earliest times of the collodion process according to a formula by Selle, who prescribed a solution of 10 gm. (2½ drachms) each of ferricyanide of potassium and uranyl nitrate in 100 cm. (3½ ounces) of water.

After the collodion process had been superceded by gelatine emulsion plates Dr. Joseph Maria Eder revived Selle's process, modifying it to some extent, and we find it described in detail on page 82 of his book "Modern Dry Plates," translated by Baden-Pritchard in 1881. Soon after its publication T. C. Roche and Charles Ehrmann exhibited uranium intensified positives and negatives before the Association of Operative Photographers in New York, and ever since gelatine positives and negatives, and, later, bromide prints and bromide transfers have been toned or intensified in this manner.

Let us look superficially at the chemical process taking place when toning in this manner, with especial regard to the alleged improvement of it, and the perfect preservation of the whites in the high lights.

Uranyl salts are not precipitated by ferri-cyanide of potassium, the so-called red prussiate, but forms precipitates with ferro-cyanide of potassium, the yellow prussiate. When ferri-cyanide of potassium comes into contact with the silver deposit of either negative or positive, the conditions of the two substances are changed—the ferric salt is reduced to the ferrous state, and a portion of the metallic silver is formed into ferro-cyanide of silver. Then only an action of uranyl nitrate becomes possible, and, in combining with the reduced (the ferro-cyanide of potassium) the reddish-brown precipitate we desire to obtain (the ferro-cyanide uranium) begins to form. The longer the silver deposit is subjected to the action of the solution, and the more concentrated its strength, the more intense in color will be the deposit.

Before reduction takes place, the not yet decomposed ferri-cyanide and the uranyl nitrate have ample opportunity to permeate the soft and porous gelatine film. It is one of the properties of the ferri-cyanide of potassium to harden or to tan gelatine, a consequence of which is that the decomposition products, as well as undecomposed portions of the salt, are so closely enveloped within the film that they are not removable by washing in pure water; the whites of a positive impression therefore remain yellow, notwithstanding all means employed to prevent it

But the prints we have seen, which were made before us, can justly boast of perfectly pure whites, without any tinge of yellow in the lights, and we are told the addition of acetic acid has wrought this wonderful and very interesting thing.

The making of uranium-toned prints with pure whites is nothing new. It is an American invention, as has been publicly announced, I believe. In fact, we find the process described in all newer handbooks of photography. A formula for it appeared first in "Photographische Mittheilungen," published by Dr. E. Vogel, which is as follows:

Red prussiate solution 2 in 100..50 c.m. (1 oz. 6 dr.)
Uranyl nitrate solution 1 in 100..50 c.m. (1 oz. 6 dr.)
Glacial acetic acid.....12 c.m. (3 drachms.)

How simple the toning is will be at once understood, and I cannot possibly imagine why so much noise has been made about it. We all know the properties of the chemicals we work with—and those that do not ought to. We knew all along of the tanning properties of ferricyanide of potassium, and those of acids to soften gelatine or destroy its viscosity. "Photographic and photochemical novelties are floating in the atmosphere, as it were, waiting to be picked up by the first comer," as has been said by an old practitioner, and he is entirely right.

The method of toning and intensifying with uranyl nitrate can be very profitably employed in the making of transparencies, for decorative purposes and for projections. An under-developed gelatine lantern-slide may be intensified with it to perfection, gaining at the same time an agreeable and warmer tone. Failures in lantern-slide

making is almost entirely out of the question when we press the red prussiate into our service. Under-developed slides we intensify by the method described, and over-exposed and over-developed plates, subjected to a process which I will describe at some other occasion, may be made into beautifully clear and detailed slides by applying Farmer's solution.

Let us now throw a glance at the process of intensifying negatives with uranyl nitrate—not applicable to all cases of improving feeble negatives but eminently so to some. Under-exposed and under-developed negatives, unfit to print from on account of harshness in some portions and weakness in others, may be made excellent printers with the uranium intensifier so long as the negative is free from fog and perfectly clear in its non exposed portion. Of course we must dispense in this case with the acetic acid. What is deliterious to the toning of a bromide print becomes here the most important factor. The yellow tone assumed by the clear parts of the negative retards the too forcible printing of the shadows and establishes a harmony between light and shades not attainable with mercurial intensifiers on negatives of the described character. The manipulation requires a little more than ordinary attention, but there is one consolation in case failures occur; the whole uranium deposits can be removed by a weak solution of cyanide of potassium, and after washing the plate a new intensification can be undertaken.

Uranium intensified positives may be rendered blue by immersing the plate in a solution of ferrous sulphate—also a method of considerable age, but deserving the attentions of our diligent amateurs for all that.

Charles Ehrmann.

Notes and News.

"**Your esteemed weekly** is to me ever a welcome guest," writes H. England, of Toronto, Ontario.

An Evening With Photography was enjoyed by a large audience in the Congregational Church of Washington Avenue, Thursday evening, November 17th, under the direction of Mr. Cyrus Prosch, the well-known manufacturer of the Prosch shutter.

Mr. Ernest Edwards has received so many requests for the details of his formula and method of developing which was briefly mentioned in the editorial accompanying his picture, "By the Sea" (Oct. 30th issue), that he has decided to publish it in an early issue of THE PHOTOGRAPHIC TIMES.

Frederick H. Chapin, of Hartford, Conn., author of "Mountaineering in Colorado," who has written several interesting accounts of his trips with the camera for the readers of THE PHOTOGRAPHIC TIMES, lectured before the New York Camera Club on Thursday evening, November 12th, on "Mountaineering in Colorado," the lecture being illustrated with lantern-slides from Mr. Chapin's own negatives.

To Repair Broken Negatives.—Place the negative, gelatine side down, on a plate rather larger than the negative. Coat the edges of the fragments with warm Canada balsam; join them together, using strong pressure. Remove the excess of balsam, then cover the negative with another plate exactly the same size, and previously coated on one side with this varnish:

Sandarac	3 grammes (46 grains.)
Mastic in tears	3 grammes (46 grains.)
Sulphuric ether	50 grammes (12 drachms, 15 grains.)
Benzole (pure)	25 grammes (6 drachms, 3 grains.)

Lift together the three plates, turn them over, remove the large one that has served as a support, scrape off from the gelatine side the balsam that may have exuded, then surround the two plates with strips of gummed paper. Heat slightly the fragment before joining them together. This process will yield a print upon which no trace of breaking is to be seen.—*L'Amateur Photographe.*

Toning after Fixing.—Toning formulas are very numerous generally, and in the best one of the methods used the prints are first toned, then almost immediately fixed with hyposulphite of soda. Numerous baths have also been proposed by which the prints are toned and fixed at the same time. These baths being generally acid, should be rejected, as they may produce a more or less sulphuration of the prints. It may be useful, notably when there is no toning bath at hand, to first fix the prints, and afterwards tone them after a certain lapse of time. Here is a formula of a bath that may be used with advantage: Sulphocyanide of ammonium, 30 grammes (7 dr. 42 gr.); chloride of gold, 0.30 gramme (½ grain); caustic potash, 0.30 gramme (½ grain). This bath may be used immediately, as the caustic potash provokes the instantaneous dissolving of the red precipitate which is formed when the gold salt is added to the sulphocyanide. It keeps well, acts very rapidly, and allows toning up to blue-black. Tones of a darker purple are obtained by using 5 grammes (77 grains) of carbonate of soda in place of the caustic potash. This bath may be diluted with two or three parts of water when using paper sized with non-albumenized starch; in this case it is extremely economical. It may also be used before fixing, but then it acts very slowly, and has a tendency to give pinkish tones. This toning should be followed by abundant washing.—*M. Mercier.*

Toning Bromide Prints.—Mr. S. Herbert Fry says: To tone bromide prints with ferricyanide of potassium and nitrate of uranium, it is important to fix, wash, and dry the print before attempting to change the color. Have a piece of glass larger than the print to be operated upon. Soak the print in clean cold water thoroughly. Lay it down wet, and face upwards, upon the sheet of glass. Take a large handful of cotton wool, soak it like a sponge in clean cold water, and rub it over the surface of the

bromide print so as to remove the surplus liquid, and "squeegee" the print down flat upon the glass. Have some toning solution at hand in a saucer, wring out the water from cotton wool, and soak it in the toning solution. Place a couple of fingers of the left hand upon the same side of the print, and with the cotton wool saturated with toning in the right hand, boldly and freely work it all over the face of the print, until the desired tone is there. Keep the cotton wool well saturated and moving freely, and there will not be any staining. When sufficiently toned remove any surplus ferricyanide solution with the wool, and proceed to wash the print with clean cold water with a fresh cotton wool sponge, until the yellow stain is removed from the fiber of the paper. Sometimes this won't all come out, especially if a very rough-surfaced and absorbent paper be employed; but many prefer a tinted to a white paper effect. There is nothing new in this method, but it is, nevertheless, the best way of using the uranium toner, and to avoid staining and other irregularities. Less solution is required, and no large bath. The toning solution is made as follows: No. 1—Ferricyanide potass, 20 grains; acetic acid, ½ ounce; water, 10 ounces. No. 2—Nitrate uranium, 20 grains; acetic acid, ½ ounce; water, 10 ounces. To be mixed in equal parts before required for use.—*Optical Lantern.*

The Photogravure Process.—*Westward Ho!* for November contains an article on "Modern Methods of Illustration," by W. H. Hyslop, from which we extract the following, as it describes the process by which many of the PHOTOGRAPHIC TIMES illustrations have been made:

It may be conceded that for the reproduction of paintings, Goupil's results have not been excelled, but in the domain of printing from original landscape negatives, nothing has been done anywhere which at all equals that done in the United States. This has been brought about by the almost lifelong labors of Mr. Ernest Edwards of the New York Photogravure Co., the pioneer of the process in this country.

The production of a photogravure print may be divided into half a dozen stages.

First.—From an ordinary photographic negative a transparent positive is made upon carbon tissue (see remarks on carbon process) developing on a prepared glass plate.

Second.—From the transparent positive a negative is made upon carbon tissue for development upon a prepared copper plate; this carbon negative forming the "resist" in the etching bath.

Third.—Laying the etching ground upon a polished copper-plate, conferring the power of holding the ink upon the copper-plate by dusting over it finely-powdered resin, or asphaltum, etc,

Fourth.—The carbon image (second part), is mounted and developed upon the prepared copper-plate (third), and dried thereon.

Fifth.—A protection is given to the margin and the plate is etched in a solution of perchloride of iron or dilute nitric acid. The resist is then cleaned off and the margin and high lights burnished where necessary.

Sixth.—Printing from plate much in the same manner as copper plate etchings and mezzotint engravings are printed.

After the plate is proved, and retouched with burnisher and roulette, it must be steel-faced if many impressions are required.

Colors Photographed.—Some time ago everybody was talking about the long-sought-for method of photographing in colors, as it was said that pictures of church windows had been obtained in their original hues. A full description of the process was printed at the time, and now interest had been renewed in the discovery by the statement that a Swiss doctor had succeeded after a long series of experiments in perfecting the method, and has obtained some wonderful photographs containing not only red, yellow, green and white shades, but even the chemically active violet rays which lie at the far end of the spectrum. These pictures have been sent to Düsseldorf and the photographic journals speak very favorably of their retention of color. They were taken in twenty seconds at midday with only sunlight and no aid whatever from artificial light.—*New York Press.*

PORTRAIT NEGATIVES.

THE production of portrait negatives in the present day in all probability occupies more attention than any other class of photographic negative work from which direct results are obtained, and none varies more in kind and quality. The portrait negatives produced by some of our leading men are so different in *technique* that they might be the outcome of entirely different processes, although we know the materials used are practically the same, the difference depending entirely on the methods of use and conditions of illumination; accidental conditions might, perhaps, be not altogether an inappropriate term.

The standards of perfection being as varied as the studio in which the exposures are made, it is marvelous that the printed and finished results should bear the close resemblance in general appearance that they undoubtedly do. There is an immense amount of portrait work that almost entirely depends on the retoucher for any good quality it may possess; so much so, that the title "photograph" is entirely a misnamer. It may be fairly inferred that the decadence of portrait photography will be due to the excessive and ill-judged use of the pencil. From year to year we see the growing reliance placed by photographers on hand work, and the comparatively small importance attached to the quality of the negative itself.

The posing cannot, of course, be much influenced by the retoucher, but individual form and features are daily *improved* (sic) out of all resemblance to the originals; crooked noses are made straight, and stout figures are made slim; in fact, any alteration that panders to the vanity of the sitter is adopted as a matter of course. Adverse criticism by friends on such alterations is generally considered too delicate a matter to be rashly indulged in; so the retoucher flourishes, and lying resemblances are handed down to posterity, or so long as the prints will last.

It is a debatable question whether, providing all retouching could be wiped off existing negatives, the photographs remaining would not be considerably worse than they were before it became such a universal practice. These remarks, of course, merely apply to the technical quality of the negatives, for undoubtedly, from an artistic point of view, they have vastly improved, and continued improving. But, if there is one better way than another to make a portrait negative, it should be the standard for imitation. One leading operator has for his standard a

negative which, when held up to the light, shows very little detail in the shadows, on account of its exceeding thinness, The image itself is merely a ruddy stain, visible enough when laid in close contact with white paper, but not otherwise. Another produces an image in which the detail in the shadows is very pronounced, and the highest lights are scarcely distinguishable from the secondary ones. The two kinds of negatives form a striking contrast, yet the prints are equally good, and barely distinguishable from each other, when finished and mounted, in respect of quality.

That there must be some difference in reality is patent to everybody that understands it, but that difference does not appear on the surface. That such thin negatives require most careful printing in a subdued light, and the denser ones a longer time in a brighter light, goes without saying. The difference will be most pronounced in the permanence of the results that time can alone develop, and which I fancy will be to the advantage of the print from the denser negative. There are many variations of quality between these extremes, and all producing excellent results according to the amount of skill bestowed on the printing ; but the point at issue is to what is the difference due. Judgment and development may have something to do with it, but not nearly all, as the same worker will be unable to get the same class of work in one studio as another, try as he will ; all may be good, but of a distinct character, which seems to depend almost entirely—at any rate—more than is generally thought, on the actinism and concentrativeness of the light used, which is controlled by the color of the glass of the skylight, or the murkiness of the atmosphere and general surroundings, rather than by the particular style of lighting that may be adopted.

It will be noticed that negatives taken by the electric light are usually of the thin character and ruddy color, whereas those taken by ordinary daylight in large towns are the denser kind, the time of exposure being the same in both cases. The light transmitted through perfectly clean glass at a seaside place is of great actinic power, and conducive to the production of thin, brilliant negatives of a warm color, the tint of the image with either soda or ammonia development being browner and more non-actinic than if taken under less favorable conditions of light, in all cases a perfect exposure being understood.

There is no doubt that warm colors are closely associated with fineness of deposit, and fineness of deposit is a decided advantage when enlarged reproductions have to be made, as they so frequently have to be, besides causing a negative to print with more creaminess and quality than when of a colder and blacker character. The larger the scale on which the portrait is taken, the more pronounced is the effect of the color and density of the image on the quality of the print. I do not think it would be possible to get richer-looking results by any process whatever than those procurable from collodio-albumen negatives; in these the image partakes more of the character of a stain than a deposit, and the gradations are perfect. The slowness of this process precludes its use in the stndio, but, providing they could be made rapid as gelatine, the days of gelatine, probably, would be numbered, on account of the great superiority of the quality of the image on an albumen film.

It is a conclusion reluctantly arrived at, that a surface of *great* rapidity must be accompanied by a corresponding coarseness of bromide of silver. Whether this will ever be otherwise it is impossible to say, although it is on record that very rapid plates have been produced in conjunction with the finer bromide possessing the characteristic orange color by transmitted light. All the very rapid plates I have seen, and are now available, without exception transmit blue or gray light, and it will be a great step towards quality when orange is the prevailing color in lieu of it. Generally speaking, a very rapid exposure requires a very prolonged development to get out as much detail as possible, which also tends to coarseness and blackness of image. A somewhat parallel case is the act of crystallization, when the slower the process the larger the crystals. A coarse image, whether resulting from the emulsion itself or the development of it, can never produce so delicate and rich a print as when the image is finer in quality. I think, in most cases of studio work, it is as well to sacrifice some rapidity to fineness of quality. Plates showing nineteen on the Warnerke sensitomer are sufficiently rapid for most studio work, even in densely populated towns; and even slower plates than these might be used with advantage at seaside or other places, where the light is exceptionally brilliant and actinic.

With regard to developers, "pyro and ammonia" seems to be the general favorite, except under special conditions, when a very rapid exposure and bad light indicate some advantage in the use of eikonogen. In a steady, good light, carbonate of soda will produce charming results, but has the disadvantage of producing images difficult of reduction in case of over-development and consequent over-intensity, the yellowness produced being very often a source of trouble and impossible to satisfactorily get rid of. Take it altogether I do not think there are any developing agents better than our old friends, pyro and ammonia. They work uniformly under most conditions, and negatives are easily amenable to aftert-reatment, both as to reduction and intensification, a quality not to be despised, especially when much large work is done, and a waste of plates would be a serious loss. I believe that an exposure that will admit of a fairly rapid development will produce a better quality of negative than if the process was slower. If the exposure has been much too long, instead of getting a rapidly developing negative, it is just the reverse ; the necessary density being difficult to get, the process has to be much lengthened.

With under-exposure, development is, of course, slow ; but, for an opposite reason—that of getting detail instead of density—lengthened and forced development tends to produce a coarse image, irrespective of the quality of the plate itself, although this always exercises considerable influence on the result. A thinish, stainlike character of image, of a good non-actinic color, will produce better prints, other things being equal, than any other class of portrait negative; and, if some modification could be devised, either in the preparation or after treatment of the plates, that would conduce to this end, combined with orthochromatism, it would be a step towards doing away with retouching in its most pronounced and objectionable form.—*Edward Dunmore in the British Journal of Photography.*

Photographic Societies.

THE SYRACUSE CAMERA CLUB.

ON October 22d and 23d, the beautiful prints made by Mr. H. P. Robinson were exhibited in the Club Rooms. Fully 300 persons, friends of members of the club, viewed and admired them.

October 30th we were delightfully entertained and instructed by an exhibition of many choice lantern-slides, and a talk on pbotography by Miss Catherine Weed Barnes. A room full of people welcomed the enthusiastic photographer, and heartily applauded her brilliant results. It is certainly a pleasure to meet a person who seems to be so "alive" with her subject.

A set of slides, the work of Mr. C. R. Pancoast, were enjoyed at our meeting of Friday, November 6th. Every one conceded them one of the best collection of slides ever exhibited on our screen.

The interiors of rooms at the Calcutta exhibition brought fourth a great deal of praise. They were remarkable for the wonderful detail in the shadows, and the softness of high lights. The seashore views were also remarkably fine. The country scenes in Connecticut were much admired for the sharpness of the foreground and distance. Every slide was a picture from the artist's point of view.

The Syracuse Club gives a print exhibition about the middle of December.

THE PROVIDENCE CAMERA CLUB.

OUR Club, I think, is doing as well as any of the New England Clubs this year. We have interested eight of the New England Clubs to continue the Exchange of Lantern Slides, and expect to begin exchanging the first of December. The following are the societies this season: Mystic Camera Club; Lynn Camera Club; Portland Camera Club; Springfield Club; Waterbury Photographic Society; New Britain Photographic Association; Hartford Camara Club, and Providence Camera Club.

Last year this was a very pleasant and profitable addition to our Club's entertainments, and we are looking for something pretty good the coming season, particularly from Mystic and Portland. Then our Entertainment Committee have arranged a few papers from members of the Club during the winter. The first was given at our regular meeting last Saturday night, and was an illustrated lecture on "The Mission of the Magic Lantern," by John Fretwell.

Others will be, "Bromide Paper," November 24th, by the President. "Development," December 5th, by L. L. Anderström.

"Landscape Lenses," an historical sketch of the different forms used in the last forty years, by Mr. W. T. Burrow, January 2d. "Silver Printing," by Mr. E. Q. Gladding, on January 19th.

"A Trip to Europe," illustrated, by Mr. W. T. Burrow on February 6th, and "Bromide Enlargement," by Mr. H J. Reynolds, on February 23d. These are not expected to be exhaustive treatises on the subjects, but in order to bring them before the Club in a more formal manner, that the discussion may be made more useful.

Our Executive Committee propose to make a change in regard to our exhibitions and expect to have a number of exhibitions in our own rooms this year. The first will be a silver print exhibition, to be held for a week (or two), the first of January, to be followed by an exhibit of bromide work, and this also by a process print if we are successful enough.

Although our membership, about fifty-five, is not as large as many of the neighboring clubs, I feel that we have as much *real* interest as any of them.

R. Clinton Fuller.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the above-mentioned Society was held at No. 9, Kaga-Yashiki, Tokyo on the 4th inst. The object of the meeting was to give members an opportunity of testing the rapidity of their instantaneous shutters.

A fly-wheel, rotated by a crank and having a silvered glass ball attached to the periphery was fixed up, with a seconds pendelum alongside of it. By watching the seconds pendulum, it was very easy, after a little time, to make the wheel revolve at a uniform rate of sixty revolutions a minute or one a second.

Immediately that a uniform speed of sixty revolutions a minute had been attained, an exposure was made with the shutter to be tested. On development of the plate the angular motion of the wheel was indicated by the length of line traced out by the silvered ball, and it was a very simple problem to work out the exposure in the form of the fraction of a second.

The shutter that worked the most quickly was the "Caldwell." This, its highest speed gave an exposure estimated at only $\frac{1}{125}$ of a second. Of the rapidest of the other shutters tried, none gave as little as twice this length of exposure. The longest exposure that was "Instantaneous" (not "time") was $\frac{1}{18}$ of a second.

Photographers who do "instantaneous work" have generally notions, vague to say the least of it, about the exposures they are giving. The tests made by the Photographic Society of Japan go to prove that by far the greater number of "instantaneous exposures" are somewhere between $\frac{1}{20}$ and $\frac{1}{50}$ of a aecond.

An interesting feature of the meeting was a trial of speed, by several of the members, in hand exposures "cap off and on." It was shown that more than one member could give an exposure as short as one-fifth of a second by hand, and that without shaking the camera at all, It was found advisable to use a very loose cap.

The following gentlemen were elected members of the Society. Mr. E. Beitter, Mr. J. Rickett, and Mr. S. Suzuki.

This report has been delayed on account of the time necessary to work out the exposures of the various shutters, from the markings on the plates exposed.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

MEETING of November 10, 1891, President James Stebbins, Jr, in the chair.

The President regretted not being able to speak further on para-amidophenol, a series of experiments which he had undertaken not being yet completed. He asked if Professor Charles Ehrmann, who was present, had any further remarks to make on the same subject.

Professor Ehrmann responded that for want of sufficient

material he had confined his experiments to making lantern-slides, and could therefore only repeat what he had said at a previous meeting. He showed two prints from para-amidophenol developed negatives by Thomas J. Bray, of Ohio, as a proof of how fine details the developer is capable to bring forth on plates instantaneously exposed. He then read an extract from an article by Dr. F. Stolze, in *Photographiche Nachrichter*, as follows:

Dr. Anderson, the inventor of eikonogen, suggested para-amidophenol as a developer for bromide of silver gelatine emulsion plates; first, for its unusually great energy, and secondly, because of its oxidation products not yellowing the gelatine film, as eikonogen and hydrochinon invariably will do.

Dr. Stolze, who applied this agent to the development of bromide paper, adopted the formulas of Dr. Anderson, viz:

(1)—Water ..... 1000 Cm. (32 oz.)
Hydrochlorate of para-amidophenol. ... 5 Gm. (85 grains.)
Sodium sulphite..... 50 Gm. (1 oz. 5 dr.)
Potassium carbonate..... 25 Gm. (6½ dr.)

and

(2)—In boiling water..... 100 Cm. (3½ oz.)
dissolve
Potassium metabisulphite..... 30 Gm. (1 oz.)
and
Hydrochlorate of para-amidophenol-..... 10 Gm. (3 dr.)

and add to the solution, by constantly agitating it, saturated solution of caustic soda, till the precipitation formed is redissolved. The solution is used diluted with from 5 to 50 volumes of water, as exigencies may require.

In course of experimenting No. (1) was found to be the most rapid developer for bromide prints known. Ferrous oxalate with the addition of hyposulphite of sodium develops equally quick, but as the whites suffer invariably, it is unfit for bromide paper developing. Rapid hydrochinon solutions attack the paper and injure the gelatine film. No. (1) works so extremely rapid that for very large pictures, requiring especial care and attention, the developer must be much more diluted, with double the quantity of water perhaps, so that the solution would then be in the proportion of 5 in 2000. If, however, the para-amidophenol is wanted to produce as much detail as ferrous oxalate does, the proportions of alkali should be increased to from 25 to 30 per cent. But there results a clearness in the whites, brilliancy in the brilliancy in the high lights, and velvety blacks in the shadows, never before seen on bromide prints. But, most advantageously, this brilliancy is permanent; it does not vanish when the proof is dry, the cause of which is doubtless the enormous rapidity of the process, in consequence of which the developed image remains upon the surface of the paper and does not sink in, as must necessarily occur when development is restrained.

With the composition of No. (2) developer a great problem in practical photography has been successfully solved, namely, to compound a developer in highly concentrated form. Diluting the normal solution with fifty times its volume of water we have a developer of the same strength as No. (1). A stock solution of 100 cm. is therefore equal in strength to 5 liters of developer ready for use. If we consider eikonogen, hydrochinon, and especially ferrous oxalate prussiate but a dilution with equal quantity of water, the developer No (2) is actually capable to be diluted a hundred times.

Dr. Stolze, he said, illustrates the convenience of using such highly concentrated solution in the printing method with bromide of silver paper. To develop an enlargment of 90 x 120 cm. he uses about 6 liters of diluted ferrous oxalate, made by adding 600 c.cm. saturated solution of ferrous sulphate to 3 liters saturated solution of potassium oxalate and 2.4 liters of water. With para-amidophenol 6 liters of water and 60 c.cm. of stock solution complete the whole arrangement. While for a number of enlargements of larger dimensions development with iron requires a whole battery of mighty bottles and jars, with para-amidophenol; a tiny little stock bottle, and the necessary water drawn from the faucet does the business. And what is more, the acid clearing solution after developing is entirely dispensed with.

As far as the durability of para-amidophenol is concerned, Dr. Stolze has kept the ready-made solution mixed with caustic alkali for more than two weeks in a bottle but partly filled. After that time a tiny stratum on top of the solution had colored slightly, not enough, however, to show color in the diluted solution.

Mr. G. D. Milburn, representing the Eastman Company, then proceeded to make some bromide enlargements by electric arc light, and to tone them to a brown or sepia tone after development and fixing.

He pronounced the word "enlargement" as used in relation to what he was about to do, a misnomer, for he restored the picture of the subject to its original size; and "restoration," he said, was the word more descriptive of the operation than that heretofore generally used.

He "restored" then a 5 x 7 portrait of lady to the natural size of the subject, exposed portions of the bromide paper for 30 seconds, and others for from 1 to 2 minutes to produce harmony throughout. The arc light used is of 1900 candle power.

To tone a bromide print, it must be perfectly freed from hypo, and Mr. Milburn demonstrated the process with prints made and washed previously. The operation is as follows:

Toning Solution.

Potassium fericyanide (not ferrocyanide).... 9 grains
Uranium nitrate..... 8 grains
Glacial acetic acid..... 5 drachms
Water..... 16 ounces

Dissolve the ferricyanide in the water and let stand a few minutes, add the acetic acid, then the uranium nitrate; filter if any precipitate is formed.

This toning solution should be kept in the dark when not in use.

If any precipitate forms during the operation of toning, filter it off, as it will discolor the print.

Tone to the desired color and wash in running water for about twenty-five minutes or until the print is clear and free from yellow color.

The secret of success lies in washing the print free from hypo and iron before toning.

Use rubber trays for the toning solution. Iron or enameled trays are liable to turn the prints blue.

Washing the prints before toning in oxalate of potash solution, and then in clean water, will aid in removing the iron remaining in the paper after developing.

The permanency of the picture is not believed to be impaired by the above process.

The tones obtained were very beautiful and were much admired by the audience.

Professor Ehrmann then spoke on toning and intensifying by uranium salts (see page 578), and was listened to with much interest.

Mr. Inglis, of Chicago, said that the company which he represents are inventors of an entirely new process of toning bromide prints to a sepia color. It is entirely different in every feature from that demonstrated before the meeting, and neither uranium nor ferricyanide of potassium is brought into requisition, and, in fact, the basis of the tone is within the preparation of the paper. A patent has been applied for, and he was therefore not at liberty to divulge the secret of making these prints. He exhibited several very large pictures, landscapes and portraits of rare beauty.

The Editorial Table.

Die Negative-Retouche, by Hans Arnold. Wien, Pesth, Leipzig: A. Hartleben.

A very instructive handbook on the art of retouching negatives, from the technical and the artistic standpoint. An excellent treatise of this particular branch of portrait photography.

From S. R. Earl, of Wynnewood, Pa., we have received a 4 x 5 lightning photograph, made during a severe storm on July 15th, at 9:20 P. M. The lightening is very vividly depicted, and the photograph is well made in every particular.

Las Novedades Fotograficas is the title of a new monthly, No. 3 of which comes to us from Bilbao, Spain.

We suppose the title to correspond with *The Photographic News*. It has for frontispiece a phototype that might almost represent a New England farm-house scene. The contents are of a general nature.

The Photo Gazette, on the completion of its first volume, presents to subscribers a sheet of 28 labels, for the baths and mixtures most usually employed in practical work.

Two excellent heliotype illustrations accompany this bright and interesting journal.

Bishop Brooks.—The frontispiece of the PHOTOGRAPHIC TIMES for November 6th is a speaking likeness of Bishop Phillips Brooks, from a negative by F. Gutekunst, of Philadelphia, who now enjoys the reputation of being the most successful photographic portraitist in this country. All these portraits are from life, and in every case have been considered the most satisfactory portraits extant. The portrait of Bishop Brooks is no exception to the rule.—*The Montclair Herald.*

Record of Photographic Patents.

462,482. Magazine Photographic Camera. George H. Hurlbut, Belvidere, Illinois.

463,030. Album. Bernard Branner, New York, N. Y.

463,123. Photographic Camera. Frederick A. Hetherton, Indianapolis, Ind.

So your intended is really a beauty, eh?

A beauty? Yes, indeed. Why, she even looks handsome in an amateur photograph.—*Indianapolis Journal.*

Queries and Answers.

170 J. H. D. writes: "A short time since I concluded to try the formula given in the "TIMES Almanac for '91," for intensifying wet plate negatives for line work, viz:

Nitrate of lead	3 drams
Red prussiate of potash	2 drams
Water	12 ounces
Hydrosulph. ammonia (for blackening)	1 to 4

I find that with few exceptions the negatives after intensifying have a crackled appearance, fine lines running in all directions. What is the cause! With the exception mentioned it seems to work very well, giving very dense negatives.

170 *Answer.*—Very tough collodion probably. Try a different sort of gun cotton, of shorter fiber, and useless ether in the collodion Do not allow the collodion to set any more than absolutely necessary. Very high temperature in the dark-room may produce the same effect.

171 G. B. C.—Please advise me through THE TIMES (to which I am a subscriber) what causes the white effect on some lantern slides I have seen, instead of a dark-brown or a black the figures or landscapes seem to be of a pinkish white. Are they superior on that account?

171 *Answer.*—The question is not very clearly put. The whites and highest lights in a projection picture are represented by absolute transparency. Or shall we infer the brightest portions of the picture are tinged pink? If that is the case, dichroic fog, pink by transmitted and green by reflected light may be the cause, which certainly does not make the slide superior, rather inferior to others in normal condition. We would like to see a slide of the character you describe.

172 MISS F., of Albany, asks: 1. What is the best way of taking a quick picture with a candle in it, and give the effect of candle light; also to get a quick picture, if possible, showing the fire, or with fire-light effect. 2. In regard to having a picture with part of a room and scene out of the window, would orthochromatic plates be of any advantage?

172 *Answer.*—1. These are very difficult tasks for even experienced practitioners. With a very quick orthochromatic plate like the Carbutt No. 27, or the Cramer C, you will be able to photograph by instantaneous exposure the light of a candle and its halo, or the flames of a fire burning on the hearth, but we cannot say how much of the surroundings you will be able to get in either case. We advice you to color-sensitize a good emulsion plate according to the formula, by E. Oberneter, page 244, of the "American Annual of Photography" for 1891. 2. They will do very well, but you must interrupt the exposure, and expose much longer for the interior than for the landscape showing through the window. Provide the window with a dark curtain of non actinic color; when open expose for what is visible through the window; close and expose for the rest.

Published December 1st,

AND

Ready for Christmas Sales.



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Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

COLLEGE OF ST. THOMAS AQUINAS, CATHOLIC UNIVERSITY OF AMERICA,
BROOKLAND, D. C., October 27, 1891.

Dear Mr. Adams: The 11 x 14 Irving Camera and other articles shipped with it arrived safely last week. I find that the lens covers the plate perfectly, and the amount to which the bellows can be racked out will enable me to use it for copying up to equal size.

It is a most beautiful piece of work, and extremely convenient in every way, and I have no doubt I shall obtain most excellent results with it.

I expect to be able to remit the balance without taking too much advantage of your kind offer, in two or three weeks. I have not been able to use the camera yet, but expect to shortly.

Yours very truly,
G. M. SEARLE, C.S.P.

THE publishers of "The American Annual of Photography" have received several advertisements for the 1892 issue which reached them too late for publication, notwithstanding advertisers were warned that the book would be out this year earlier than ever before, and consequently would go to press earlier. The diiatory ones must wait a whole year to get another opportunity equal to the one presented by the 1892 "Annual."

Studio Changes.

Orange, Mass. George H. Thompson was burned out.

Springfield, Mass. Bigelow & Co. have dissolved partnership, F. B. Bigelow continuing the business.

Duluth, Minn. Zweiful has retired from the firm of Nye & Zweiful.

Duluth, Minn. Frank Green has sold out.

Ashland, Wis. C. C. Deeming succeeds Hopkins & Deeming.

Business Notices.

BROOKLYN, N. Y., October 28, 1891.

Sir: I respectfully announce to our patrons that I have completed improvements in the machinery, methods, and the organization of the workings of my factory, which enable me now not only to fully double the product of the late firm, but that the high character of our paper will be further enhanced thereby, and that in future all communications will receive prompt acknowledgement, and little or no delay will occur in filling all orders.

After this date a limited number of gross cabinet Omega "seconds" will be put up. These packages will be marked seconds and will be paper rejected from first quality. This will be suitable for proofs and plain prints, but not vignettes. There may be a few streaks, and small black spots, but no white ones. List price will be $1.40.

Thanking you for your past and asking your future favors,

I am, respectfully yours
C. E. HOPKINS.

FOR SALE.—Ground floor gallery in Eastern Connecticut; manufacturing village of 5,000 inhabitants; trading population 15,000. $1,000 made last year. Good reasons for selling. For particulars, if you mean business, address
A. H. CALDERWOOD, Danielsonville, Conn.

BARGAIN.—Ground floor gallery, low rent, good prices, for $450 cash. Reason for selling, other business. P. Van Tine, 520 S. Clinton Ave., Trenton, N. J.

ON account of having full control of "Omega Paper" business, and having my time fully occupied there, I desire to sell my retail Photo Supply business at 529 Fulton Street, Brooklyn.
This is a good paying business—best stand in the city—but on account of not being able to give the attention it needs I will sell at a sacrifice. Terms to suit.
C. E. HOPKINS.

BARGAIN.—An Anschuetz Patent Instantaneous Camera, 3¼ x 4¼. Price, $5 each.
UNITED STATES PHOTO SUPPLY CO.,
2 Bond Street, New York.

FOR SALE.—A new No. 5 Kodak; seal never broken; list, $60; will sell for $47. Address,
SPOT CASH, care PHOTOGRAPHIC TIMES.

FOR SALE—An Idex 4x5 Camera, with Instantaneous Lens and Shutter, five extra Holders, cost, $20, will sell for $9. Terms cash. Address
JACKSON, care of Photo, PHOTO TIMES.

FOR SALE.—A great bargain. One 4x4 Gundlach new portrait lens, with Prosch Triplex Shutter; also one No. 3, Serries II, Steinheil lens; list $122. Will sell for $60. Address CLARK, care of the PHOTOGRAPHIC TIMES Office.

WANTED.—A live salesman, well posted in the stock trade. Address M., care GEORGE MURPHY, 2 Bond Street, New York.

FOR SALE.—Twenty-three volumes of the *Philadelphia Photographer*, from 1864 to 1885; *St. Louis Journal*, from 1877 to 1891; *Anthony's Bulletin*, from 1870 to 1889.
Address, MRS. HARRIET E. NORTH,
56 Genesee Street, Utica, N. Y.

THE BEST CONSTRUCTED AND MOST DURABLE BURNISHER IS "THE ACME."

BARGAINS.—A Berthiot or Goertz Instantaneous Lens, Iris Diaphragm for 4 x 5 Detective Camera.
GEORGE MURPHY,
No. 2 Bond St., New York.

AT A REDUCTION.

FOR SALE.—Eastman Bromide Paper of the following sizes: 3¼ x 4¼, 4 x 5, 4¼ x 5½, 4¼ x 6½, 5 x 8 and 8x10, 25x30 and 30-inch of the C grade. Discount 30 per cent. from the list prices.
THE SCOVILL & ADAMS CO.

NEW GOODS.—Fine reversible back-view cameras with spring ground glass, rack and pinion focusing-screw, plate-holder and canvas case, 5 x 7 size, $12; 5 x 8 size, $14; 6½ x 8½ size, $16; 8 x 10 size, $22.50. Mail orders filled by
C. M. BROCKWAY, 33 Worth St., New York.

NEW SPECIALTIES.—A superior quality of ready-sensitized paper, also an extra fine grade of gold chloride for toning. The American, Omega, and Bradfisch Aristo papers, fine blue print and freshly silvered albumen papers. Mailed orders promptly filled by
C. M. BROCKWAY, 33 Worth St., New York.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
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R. H. MORAN,
396 Broome Street, New York.

TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
BUCHANAN, BROMLEY & CO., Importers,
Philadelphia.

FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

THREE different 8 x 10 photos of Dixon walking tight rope across Whirlpool Rapids mailed to any address on receipt of $1.00.
LANGILL, 10 East 14th Street, New York.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BARGAINS IN BACKGROUNDS.
Send for Special List.
GEORGE MURPHY, 2 Bond St., New York.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address
F. F. BRAILLARD, JR.,
423 Broome St., New York.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
BUCHANAN, BROMLEY & CO., Philadelphia.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

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Photographers can increase their business during the holidays by advocating the Platinotype.
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When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Op ical Co., New York."

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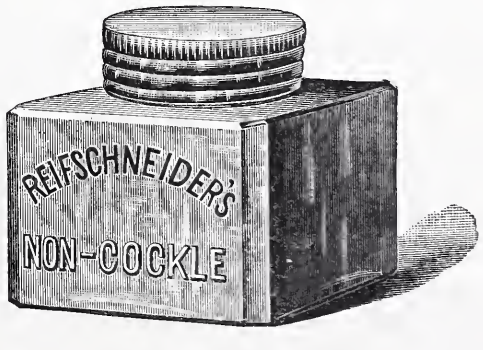
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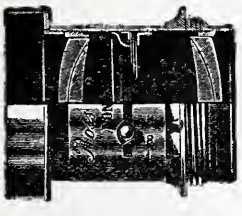
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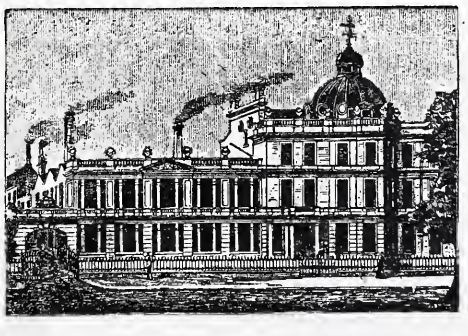
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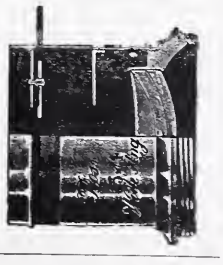
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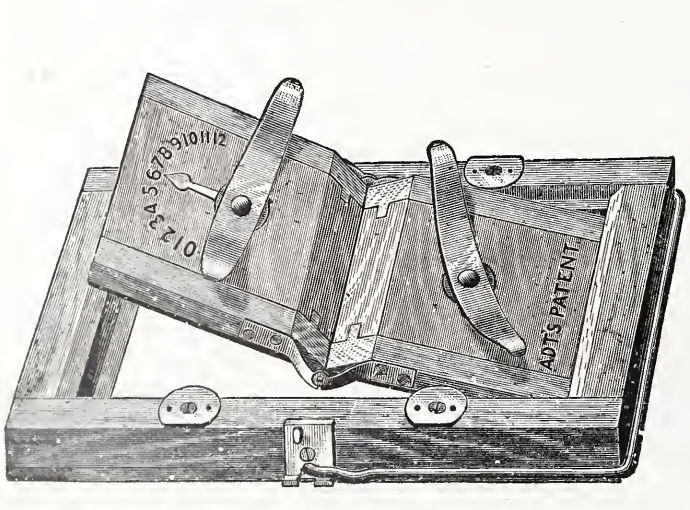
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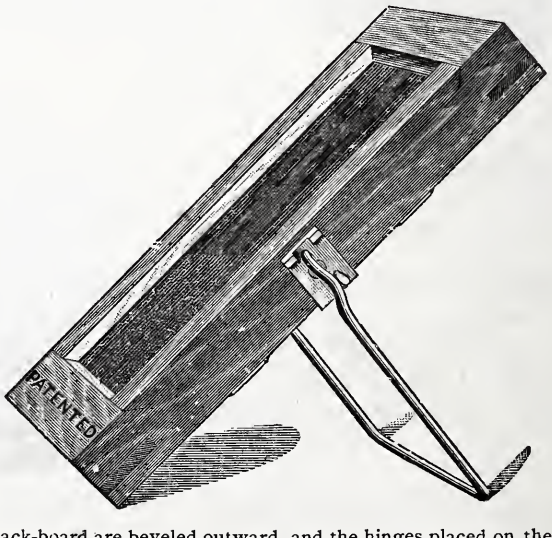
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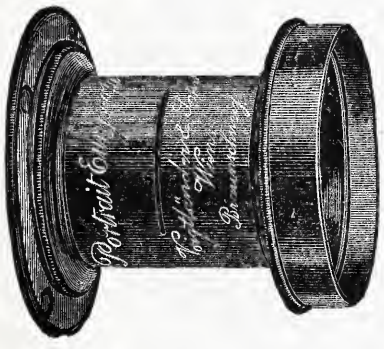
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4¼x5½,	50	5x8,	65	10x12,	1 15
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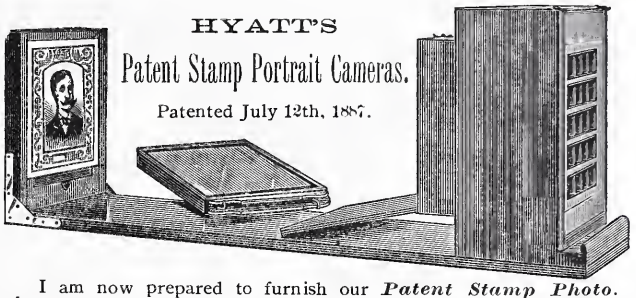
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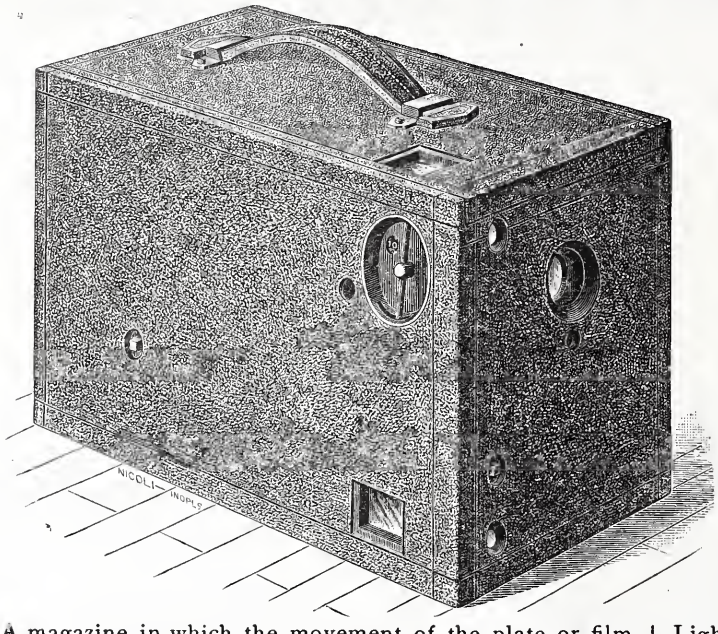
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THERE ARE NO

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THERE IS NOTHING

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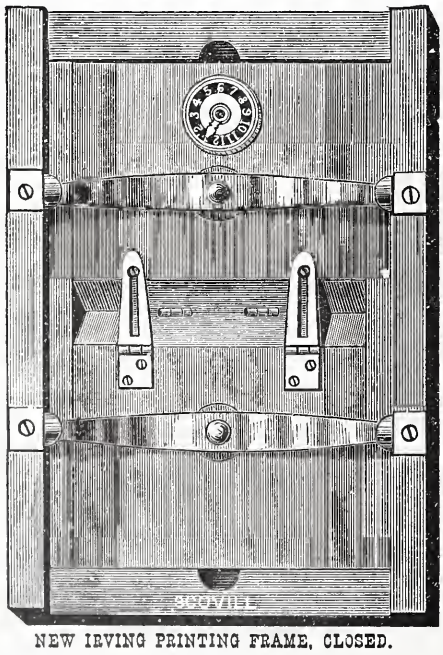
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With Adjustable Supports.

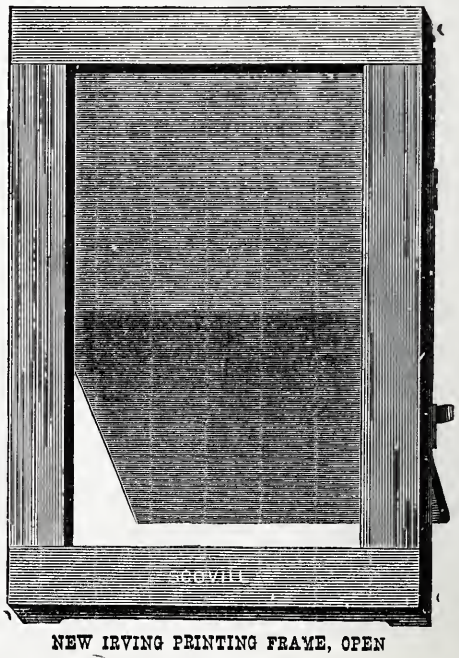
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PRICES FOR HALF OR TWO-THIRDS OPENING STYLES.

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4¼ x 6½	55
5 x 7	60
5 x 8	65
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The continuous felt pads, made especially to order for us, insure absolute protection and uniform pressure throughout. The Irving Patent Catches lock the back, so that when one flap is open there is not the slightest danger of the flaps, paper or negatives slipping.

The springs are cut by dies of specially tempered and tested metal, and are riveted to the backs with washers underneath to protect the woodwork.

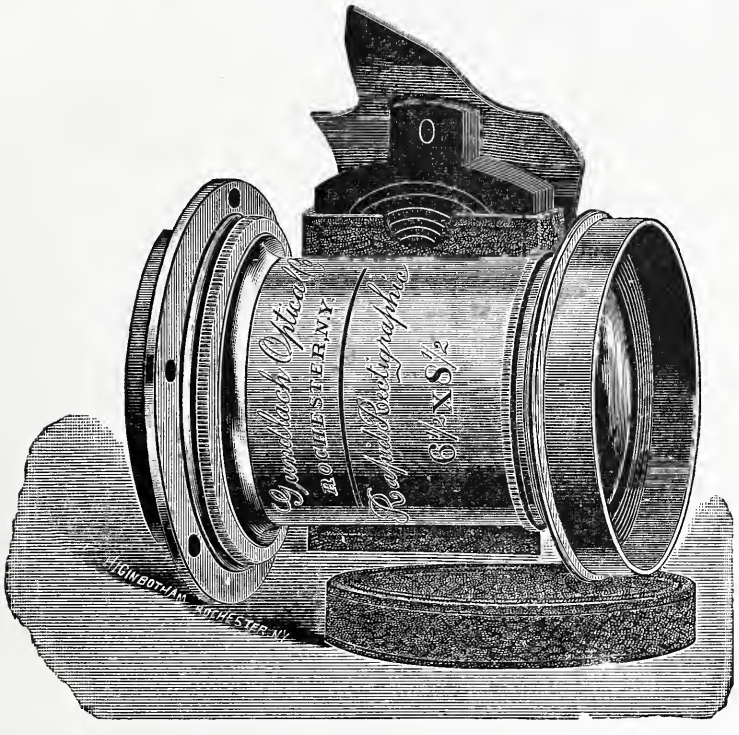
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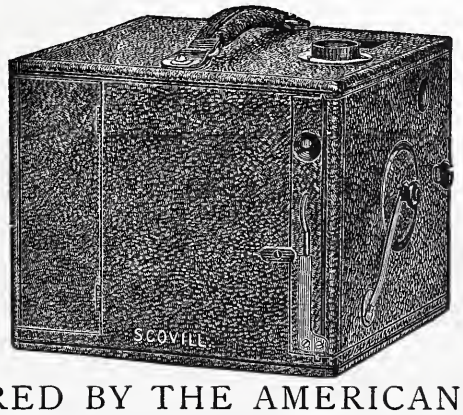
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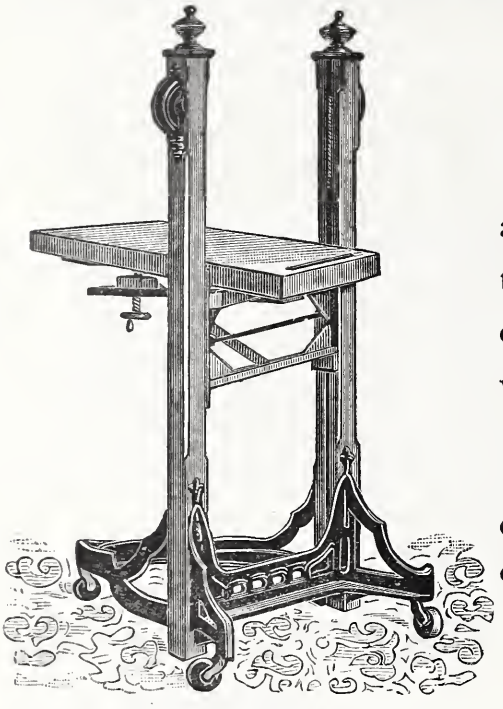
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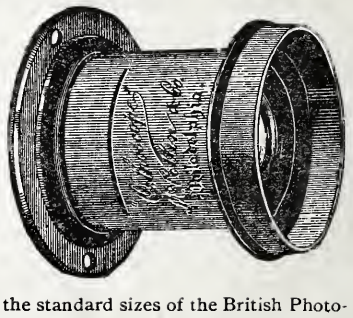
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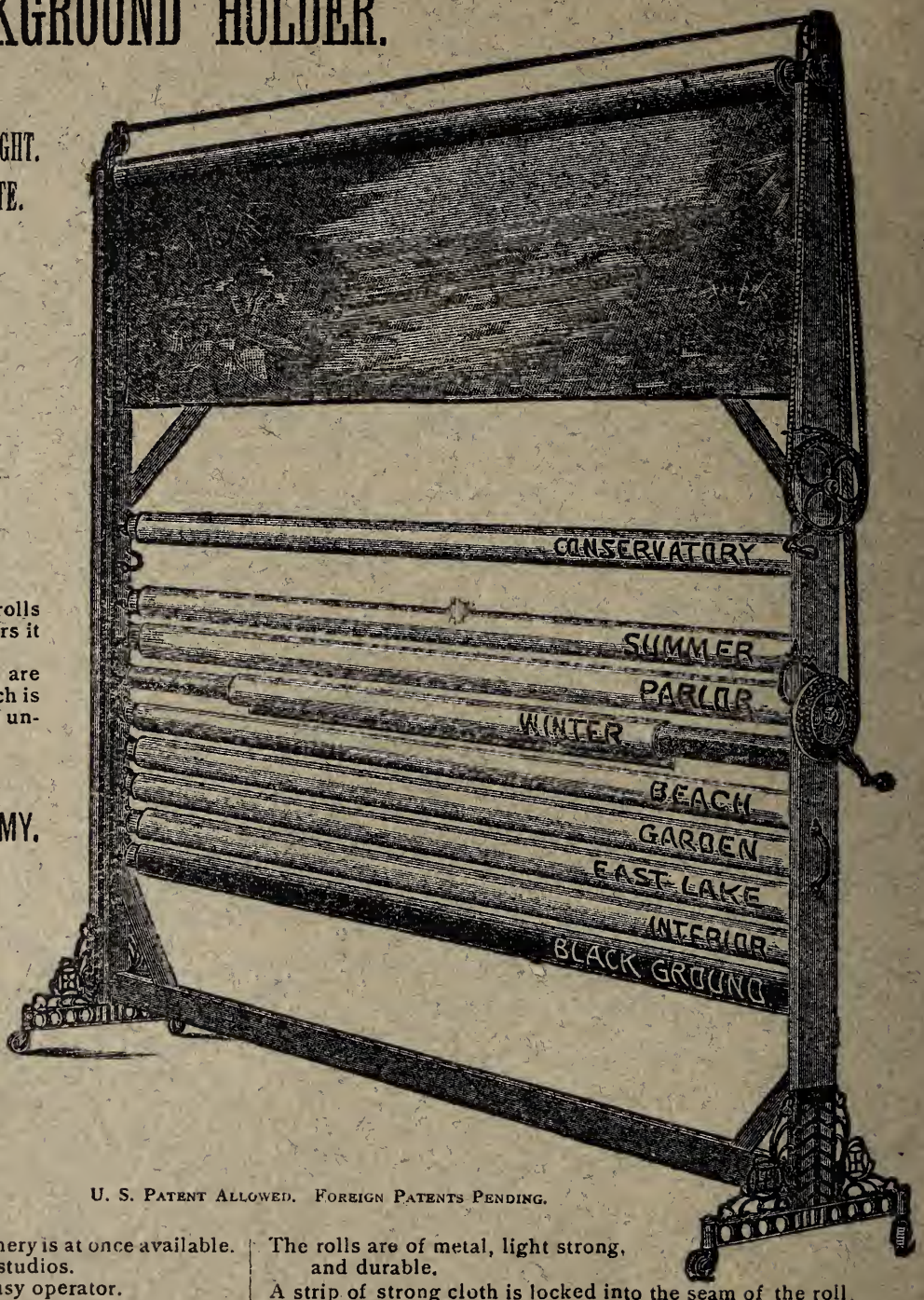
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PHOTOGRAPHIC TIMES (B)



N.Y. PHOTO-GRAVURE CO.

THE MODEL'S PASTIME

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, DECEMBER 11, 1891. No. 534.

"THE MODEL'S PASTIME."

WE take great pleasure in presenting our readers this week with the promised picture by Rudolph Eickemeyer, Jr., entitled the "Model's Pastime." "The picture was made on a winter afternoon," writes Mr. Eickemeyer. "I had been photographing the model posed in various attitudes, and was about to end the labors of the day on account of the sun's refusal to come out from behind a mass of gray clouds. Suddenly the rays poured in through the window, along the floor and into the grate. The effect was striking, and in less time than it takes to tell, I had quickly focused the camera and exposed the plate. Much of the success of the photograph is, of course, due to the cat, which played no small part in the general make-up of the picture."

We are sure our readers will be pleased with this successful figure picture made by an amateur in an ordinary interior.

PHOTO-MERCUROGRAPHY.

(*Concluding Paper.*)

VARIOUS PROCESSES

A glass plate is silvered.

Amongst the numerous processes published for that purpose the following, also employed for silvering the mirrors of microscopes, etc., giving excellent results. Make four solutions as follows :

A. Distilled water .....800 c.cm.
Silver nitrate, fused..... 64 grams

B. Distilled water.....800 c.cm.
Aqueous ammonia, 25 per cent....120 c.cm.

C. Distilled water.....800 c.cm.
Caustic soda ..... 27 grams

D. A solution of inverted sugar.

To prepare *D.* dissolve 25 grams of white sugar in 80 c.cm. of distilled water, and add 10 c.cm. of pure nitric acid diluted in the proportion of 3 per 100 of distilled water. Make this boil for a few minutes, and when cold add 20 c.cm. of alcohol at 36 deg., and, lastly, enough water to make up a volume of 800 c.cm.

The plate should be exactly clean to be silvered. For that purpose it is rubbed with nitric acid diluted with its volumn of water, rinsed, then rubbed with a solution of caustic potassa at 5 per cent. of water, and finally immersed in a tray of distilled water heated to 30 deg. C., until wanted for use, that is, during the time necessary to prepare the silvering solution.

Mix by equal volumes *A*, *B* and *C*. When the precipitate, silver oxide, is dissolved and the liquid clear, which is done in a moment, the plate is taken out from the warm water, drained, placed on a level stand and flowed with this ammonical silver solution to which has been rapidly mixed one volume of the inverted sugar. The metallic deposit commences to form almost immediately. After four or five minutes the surface of the liquid becomes covered with particles of reduced silver ; one washes the plate rapidly under the tap and, if useful, the operation is done over.

When the silvered plate is well rinsed, sponged and dry, a proof in mercury is transferred upon it ; the parts corresponding to the lines of the design are amalgamated ; and by rolling over the following ink, it takes on everywhere but the amalgamated parts :

Vaseline	120
Rosine	60
Yellow wax	25
Paraffine	15
Linseed oil	5
Lamp black	10*

Inked, the plate is dusted with bitumen in very fine powder, then heated to form a good resist by causing the bitumen to adhere to the ink. This done, the silver amalgam is dissolved by nitric acid

* This ink is also used in the Gillotage.

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and, after washing, the plate is etched by means of gaseous or liquid hydrofluoric acid or sodium fluoride.

To etch by the gaseous method 2 parts of finely, pulverized fluor spath and 7 parts of sulphuric acid at 66 deg. Baumé are placed in a leaden tray, and the plate is laid over it on a wooden frame coated with the following mixture, in order to preserve the wood from the destructive action of the acid:

Yellow wax	50
Paraffine	50
Vaseline	25

The evolution of the gas may be activated by moderately heating the tray with an alcohol lamp.

This process is the best when the lines of the design are fine and close. The engraving is matt

The manner of etching by the liquid acid or a solution of sodium fluoride suggests itself. The design is transparent; a ground glass plate should therefore be employed. If, instead of it, glass plates stained with one or more metallic oxides be selected, by following the Gillot's etching method, to partly or entirely dissolve the coloring matters one after another, exceedingly fine engraved plates in color can be produced with a high relief.

Care should be taken in handling hydrofluoric acid. It is very corrosive and its fumes are dangerous to breathe.

The amalgamation process is susceptible of other applications; for example:

A glass plate is silvered or gilt; a mercurial proof from a positive cliché is transferred upon it, after which it is inked; as usual, the ink does not take hold of the amalgam. Now, let us dissolve the amalgamated silver with nitric acid, or the amalgamated gold with nitro-muriatic acid (aqua regia), and we obtain in the first case a picture in silver, and in the second a picture in gold fixed on the plate, which, if desired, can be backed by suitable colors, or silvered, etc.

In all the processes above described the image is obtained by means of photographic clichés. However, it may happen that corrections or additions should be made, and, also, that original designs be drawn on the metal plates or transferred on the same without one having recourse to photography.

To draw one uses a mercurial ink or a pencil made as follows:

INK.

Water	30
Glycerine	2
Gum arabic	4
Sugar	2
Mercuric cyanide	5

PENCIL.

Water	30
Gum arabic	25
Mercuric iodide	125
Mercuric cyanide	25

These ingredients being intimately mixed into a homogeneous paste, the pencil is made by filling with the same the groove of a piece of cedar upon which is glued another thinner piece, or, more conveniently, by forcing the paste into the tube of the well-known Eagle Pencil.

The drawing appears white (the amalgam) on the metal. After inking, one proceeds in the ordinary manner to obtain an intaglio, or a relievo, or a lithographic engraving.

Direct transfers are drawn with the following ink on paper prepared by immersion in a bath of 2 parts of paraffine dissolved in 100 parts of petroleum, or, for counter-drawing, rendered transparent by rubbing it with hot vaseline:

Water	20
Sugar	2
Glycerine	1
Mercuric cyanide	2
Aniline violet	1

The drawing is laid with the usual care on the plate—zinc, copper, or brass—then backed with several doubles of blotting-paper, and the whole is placed under a moderate pressure for two hours, when the design will be found transferred as an amalgam.

Another method is to draw with a hygroscopic compound such as those used in the photo-dusting-on processes, say, gum arabic 2, sugar 4, inverted sugar 1, water 40, aniline color quant. suff., and then to dust over a mixture of mercuric cyanide and mercuric iodide by equal weights. The excess being blowed off, one proceeds as before explained.

PARA-AMIDOPHENOL UNDER A NEW NAME.

APPLICATION for patent has been made to the German Imperial Government by Dr. M. Andresen, of Berlin, for a highly concentrated developing solution, named by him "Rodinal."

This substance is said to form an energetic developer when diluted with water from forty to sixty times its own volume.

Rodinal is now favorably discussed in German

journals and at society meetings, and efforts are being made to introduce this agent in America.

Rodinal is not a novelty in the proper sense of the word, not even in its present condition, being nothing but a highly concentrated solution of para-amidophenol hydrochlorate, probably made after the formula named No. 2 by Professor Charles Ehrmann in the paper read by him before a recent meeting of the Society of Amateur Photographers of New York.

To prepare the solution according to the formula given in PHOTOGRAPHIC TIMES, Vol. XXI, page 583, requires, perhaps, a little more than ordinary caution, but it is nothwithstanding quite an easy developer to make.

THE MADDOX TESTIMONIAL.

FOLLOWING is the letter which has been sent out by the Honorary Secretary of the Maddox Testimonial Fund Committee:

CROMWELL HOUSE, BEXLEY HEATH, KENT,
NOVEMBER, 1891.

Dear Sir: The discovery of the gelatino-bromide process has, beyond doubt, conferred benefits upon the art-science of photography which it is difficult to over-estimate, and has been largely instrumental in helping forward every department of scientific progress during the last few years. The amateur and professional photographer, the manufacturer, the man of science—indeed, every individual class in the community—has unquestionably gained, directly or indirectly, by this important discovery, which every photographer knows is due to the experiments of Dr. R. L. Maddox, originally published nearly twenty-one years ago.

But the services of Dr. Maddox to science have not been confined to the province of photography, for in the microscopical world he has also made his mark, being, in fact, an Honorary Fellow of the Royal Microscopical Society—no small honor. Whatever Dr. Maddox has done for science has always been without hope of recompense, and without attempt to turn his discoveries to pecuniary profit; he has given all freely and gratituitously. He has attained a ripe old age, and has for many years been a martyr to a most painful disease. Further, much of what was left for his declining years was made away with by an unscrupulous trustee, and now our benefactor finds himself in need of comforts that might soothe his later years. A proposal has been made to celebrate the coming of age of the gelatine process by some acknowledgment to its originator, and the idea has been welcomed by many as a means of testifying to Dr. Maddox our gratitude to him for his free and valuable gift to the world.

Ir is hoped that the results of this appeal will be worthy of the services rendered by Dr. Moddox, and will be at once a credit to us as photographers, and a real boon to the recipient. Already a firm has come forward in a very handsome manner, and other offers of help have been made, and there is no doubt that this example will be followed by many who have reaped the benefit of Dr. Maddox's ability and generosity.

A strong and earnest committee has been formed for the purpose of conducting the business of the Testimonial, and their names are given below.

Subscriptions will be received by Mr. Francis Cobb, Riverdale, Twickenham, London, S. W., and cheques should be crossed '& Co., acct. of The Maddox Testimonial Fund.

I am yours, &c.,

Andrew Pringle,
Hon. Secretary.

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FROM JOHN CARBUTT.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I notice your editorial in the issue of THE TIMES of the 4th inst., on "The Maddox Fund," and I trust the fund raised in America will be commensurate with the benefit both makers and users of the gelatine dry-plate have and are receiving. I had just prepared a large extract from Dr. Maddox's letter to Professor Jerome Harrison, together with report of the Committee of the Franklin Institute, which I believe has not been before published, but as I see you give the full text of the letter above referred to, I will only include the report showing the award to Dr. Maddox of the Scott Legacy Medal by the Franklin Institute, and considered by its Secretary (Dr. A. H. Wahl) the more valuable of the two medals at the Institute's disposal.

Yours very truly,

John Carbutt.

REPORT OF THE SUB-COMMITTEE OF THE COMMITTEE ON SCIENCES AND THE ARTS, constituted by the Franklin Institute of the State of Pennsylvania, to whom was referred for examination "the substitution of gelatine in place of collodion for photography, as invented by Dr. Richard Leach Maddox, and freely made known by him in the pages of the *British Journal of Photography*, September 8th, 1871:"

Report that they have carefully considered the subject, and examined into the merits of the invention claimed by Dr. Maddox. They find that although gelatine had been employed photographically in a variety of ways, and although silver haloid salts had been emulsified successfully

with collodion in photographic practice, prior to the publication by Dr. Maddox of his gelatino-bromide process, nevertheless the successful emulsification by him of silver haloids with gelatine and the perfecting of a working process founded upon it, involved so much painstaking experimentation and investigation, and was such a departure from old methods that it merits recognition, on account of its marked influence on the progress of photography, on the enlargement of its practise and the multiplication of its applications in technical and purely scientific directions.

The process, though affording negatives of good quality, was soon improved in regard to the quality and sensitiveness of the plates by different individuals, by the removal of the soluble salts, by heating to higher temperatures, by prolonged digestion, by the addition of ammonia, and by changes in minor details.

In consideration, therefore, of the novelty of the process, and its value, and of the publication of it without any reservation of rights, your committee recommend the award of the Scott Legacy Medal and Premium to Dr. Richard Leach Maddox for the substitution of gelatine for collodion in photography as accomplished by him.

CHARLES F. HIMES,
JOHN C. BROWNE,
JOHN CARBUTT,
SAMUEL SANTAIN,
JOHN G. BULLOCK,
F. E. IVES.

Approved May 1, 1889.

G. Lloyd Wiegand,
Chairman.

DR. JOHN NICOL, editor of the *Beacon*, who has already called attention to the Maddox Testimonial Fund in the November issue of his periodical, writes under date of December 5th that he will assist in the movement to the utmost of his ability, and "I hope," he concludes, "that our American friends will make a liberal response."

So hope we all!

SUBSCRIPTIONS

John Carbutt.....$250 00

THE LATE WILLIAM NOTMAN.

WE received the sad news of William Notman's death last week just as we were going to press, and could therefore only announce the fact. We reprint this week the account, from the *Montreal Witness*, revised and enlarged, of this eminent photographer's career:

WILLIAM NOTMAN was born in Paisley, Scotland, on the 8th of March, 1826, and came to Montreal in 1856, when he went into the dry goods business with Messrs. Ogilvy, Lewis & Co. He had previously been an amateur photographer, fond of the art, and full of enthusiasm for it. Soon he determined to make it his profession, and he began in a small way, his modest gallery being at that time but little known. It was not long, however, until he had achieved great local distinction as an artist in photography, and soon the fame of Notman's photographs spread over Canada, to the United States, and even to Great Britain and the Continent. How many will recollect Notman's studio, who were wont to say never had they been so well suited elsewhere? How artistically photographic pictures were grouped need not be here described. Mr. Notman was singularly modest and unobtrusive, paid close attention to his business, but was well informed in the events of the day, and quick to note their trend. He had a good deal of the thoughtful deliberation of the Scotchman without quite reaching the point known as "canny," and was always friendly and cheerful in conversation. In his opinions, he was decided, and even tenacious, but only after he had thoughtfully considered matters. Like many Paisley men, he put fair play uppermost. Attention to business was his ruling characteristic. He refused to take rest, insisting upon going to his establishment, even after the cold, which fastened, as it proved, fatally upon him had progressed considerably. He died Wednesday, November 25th.

The firm of Notman & Sons has two branches in Boston, one in New York, one in Halifax, and one in the Windsor Hotel, Montreal, his Bleury Street establishment being the parent house. Nearly every distinguished stranger that has ever visited Montreal patronized Notman's, and their galleries of pictures form of themselves a most pleasant feature of our city. While deeply engaged in his own business, Mr. Notman was public spirited, too, and was a leading factor in building the Windsor Hotel. He was a member of the first Windsor syndicate. He was also active in securing the city an art gallery, which profited from his efforts. During the Philadelphia Centennial of 1876 he was associated for some time with W. Irving Adams and Edward L. Wilson in the management of the Centennial Photograph Company. To say that Mr. Notman was highly respected is not necessary in this community. Those acquainted with him cannot but feel that his death is the loss to our city of a man great in his profession. He leaves three sons and two daughters, one of the latter being Mrs. H. M. Belcher. The deceased gentleman was a member of St. Martin's Church.

The funeral took place on Saturday afternoon, November 28th, from the family residence on Sherbrooke Street, at 2 o'clock.

THE CALIFORNIA CAMERA CLUB is certainly an enterprising organization. It not only gives frequent free exhibitions, which are always entirely successful, but also holds an occasional exhibition, to which admittance is charged, with as great success. Friday evening, November 27th, "Picturesque Oddities" were thrown upon the screen under the auspices of this enterprising club, in the Metropolitan Temple, at San Francisco. Admittance tickets were fifty cents, and the proceeds of the exhibition, which were by no means small, were handed over to the San Francisco Nursery for Homeless Children. This is a work which other societies might pursue with advantage to themselves as well as to various organizations of charity.

DEVELOPMENT.—The discussion on hand-camera work, which was recently started in these columns by Mr Bray and continued by a number of photographers well qualified to treat of the subject, has recently entered a new phase. All the articles in this discussion of late have been on that important branch of hand-camera work—development. A. H. Calderwood started it with a helpful article in the November twenty-seventh issue, and was followed by S. F. H. Hewit in the succeeding number with another article on the same subject. In the present issue we take pleasure in calling attention to the suggestive article by Mr. S. P. Wells, the widely-known Eastern representative of the Cramer Dry-Plate Works. Mr. Wells speaks with authority, having been a practical photographer before he became the representative of this excellent plate. We hope our readers will take advantage of Mr. Wells' kind offer, and freely ask him for any information which they may desire.

DEVELOPMENT.

I HAVE noticed several articles of late in THE PHOTOGRAPHIC TIMES on the important subject of development. I think a few essential points may yet be added to show how all that a plate is capable of yielding may be obtained.

Many differ in the amount of pyro which should be used, and a greater difference exists as to the amount of alkali, especially among the workers of medium ability. I ask who has the best results? I then follow him closely.

What we want to do first is to get all the detail the plate is capable of giving.

Do we depend on the time of the plate, or the developer, or both? We must depend upon the minimum amount of pyro, or eikonogen, or any agent you prefer, to get the roundness or a full development of the time the plate has received. To retard a plate is to make sure you do not thoroughly develop your detail. But blacken it to the intensity required and leave undeveloped a lot of detail, which is fixed out and so lost. Now the minimum amount that will just do the work required does not block up your negative or cover a lot of fine detail, the most beautiful parts of your negative. Get detail first with softness, then in the finish of the development you get body and depth to the negative, also perfect transparency, which is impossible where the strength comes along as you develop, or with a larger amount of pyro.

The plate must look weak at first to develop right. The last minute is the most valuable, as in it the shadow detail shows for the first time. The body follows this. This is so accurate a chemical action that you can time the first plate and develop the rest by the watch more accurately than the average eye can judge them. No amount of alkali can get more detail than the normal developer having the minium amount of pyro. More alkali will kill the pyro. For overtime, the normal developer, new, with bromide added, which will retard more rapidly as the quantity of pyro is small.

We have now a clear, transparent negative and want printing color to crisp the delicate lights and detail. Simply reduce the sulphite of soda until you get a visible and positive warmth, and you will get good brilliant prints, and any desired tone, as the body negative *only* give those warm deep tones, and the *tone depends entirely on the quality of the negative.*

For a formula of the above developer, I refer you to Cramer. It is contained in all his plate boxes.

I shall be pleased to hear, through the PHOTOGRAPHIC TIMES, from any one who may try this developer, and will gladly answer in a subsequent issue any question which may be asked me, or an inquiry for further particulars.

S. P. Wells.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 607.)

CHAPTER X—*Continued.*

Mercury followed by the Ammonia as an Intensifier; used by Hunt for Collodion Negatives in 1853—The first notice which we have been able to find of the most commonly adopted process of intensification of the present day—mercury, followed by *ammonia*—is contained in the third edition of "Hunt's Manual of Photography." This edition bears the date 1853 on its title-page; but as the preface is dated December, 1852, the discovery must have been made during the latter year.

Writing of collodion negatives, Hunt says (p. 268): "A peculiar whitening process was introduced by Mr. Archer, which is as follows: The picture being thoroughly washed in plenty of water, after fixing with hyposulphite of soda, is treated in the following manner. Prepare a saturated solution of bichloride of mercury in muriatic acid. Add one part of this solution to six of water. Pour a small quantity of it over the picture at one corner, and allow it to run evenly over the glass. It will be found immediately to deepen the tones of the picture considerably, and the positive image will almost disappear; presently, a

peculiar whitening will come over it, and in a short time a beautifully delicate white picture will be brought out.

The negative character of the drawing will be entirely destroyed, the white positive alone remaining. This picture, after being well washed and dried, can be varnished and preserved as a positive; but, nevertheless, even after this bleaching, it can be changed into a deep-toned negative, many shades darker than it was originally, by immersing it, after a thorough washing, in a weak solution of hyposulphite of soda, *or a weak solution of ammonia.* The white picture will vanish, and a black negative will be the result.

It is very singular that the picture can be alternately changed from a white positive to a black negative many times in succession, and very often with improvement.

Thus, by the above process, a most perfect white positive, or a deep black negative is produced, quite distinct from each other.

In the first part of this after-process it will be observed that the effect of this bi-chloride of mercury solution is to deepen the shades of the picture, and this peculiarity can be made available to strengthen a faint image, by taking the precaution of using the solution weaker, in order that the first change may be completed before the whitening effect comes on. The progress of the change can be stopped at this point by the simple application of water."

The chemical changes produced during this method of intensification are explained further on, when treating of the process as applied to gelatine negatives.

Intensification according to Hardwich.—The nine editions of Hardwich's "Photographic Chemistry" (1855–83), form a sort of guide to photographic progress.

In the first edition (1855), we have two pages on "The Means employed to Strengthen a finished impression which is too feeble to be used as a Negative." It is pointed out that the plan of "pushing" or re-developing, which we have already described as performed with pyro and silver "cannot be applied with advantage after the picture has been washed and dried." Three plans of intensification are then given:

(1) *Donny's Method*, with mercury bichloride followed by sulphuretted hydrogen or hydrosulphate of ammonia.

(2) *Barreswil and Davanne's Process*,* by which the image is converted into iodide of silver, by treatment with iodine, exposed to light, and then re-developed.

(3) *Hunt's Method*, with mercury chloride followed by ammonia

The second (1855) and third (1856) editions of Hardwich show no change; but the fourth (1857) adds cyanide of potassium as a substance which may be used to blacken the image after the application of mercuric chloride.

The sixth edition (1861) states (p. 170) that "the writer dispenses entirely with the employment of the bi-chloride of mercury, and acts on the image with a solution of iodine in iodide of potassium until it is converted into iodide of silver, after which the hydrosulphate of ammonia is applied in the usual way."

The ninth and last (1883) edition gives sulphide of ammonium, and cyanide of silver dissolved in cyanide of potassium, as other substances which may be used to blacken the white image produced by the application of mercury bi-chloride.

Intensifying with Platinum.—Immerse the negative in a solution of platinum tetra-chloride, of the strength of about twenty grains to the ounce. The following change then takes place:

$$Pt\,Cl_4 + 2Ag_2 = Pt + 4\,Ag\,Cl$$

Platinum Chloride *and* Silver *produce* Platinum *and* Silver Chloride.

The silver of the original image thus changes place with the platinum.

The platinotype company sell a one-solution intensifier which Captain Abney states "is composed of mercuric chloride and a salt of platinum." It acts by changing the image to an orange-brown color.

Schlippe's Salt as an Intensifier (Carey Lea).—In the year 1865, Mr. Carey Lea, the famous American photo chemist, announced* a method of intensification by the use of Schlippe's salt (sodium sulphantimoniate), which has since proved of service, especially where a considerable increase in the opacity of the negative is desired. As recommended by Lea for collodion negatives, the method consisted in converting the silver of the image into silver iodide, which was then reddened by the Schlippe's salt. For gelatine negatives it is better to convert the silver into silver chloride by soaking the negative in a bath of ferric chloride (say twenty grains to the ounce):

$$Fe_2\,Cl_6 + Ag_2 = 2\,Ag\,Cl + 2\,Fe\,Cl_2$$

Ferric Chloride *and* Silver *produce* Silver Chloride *and* Ferrous Chloride.

* This appeared in the *Chimie Photographique*, and was translated in the *Photographic Journal* for August, 1854. The method is strongly recommended by R. J. Fowler in the same *Journal* for May, 1857.

* "British Journal of Photography," Vol. XII, pp. 55, 258.

Now wash the negative thoroughly, and immerse it in a bath of Schlippe's salt (strength, say a saturated solution, diluted with an equal volume of way) when the image will be converted into silver sulphantimoniate, which is of a scarlet hue.

$$3AgCl + Na_3SbS_4 = Ag_3SbS_4 + 3NaCl$$

Silver Chloride *and* Schlippe's Salt *produce* Silver Sulphantimoniate *and* Sodium Chloride.

The scarlet substance is very opaque, and the intensificatinn is correspondingly considerable. The process is, in fact, better suited for reproduction of line engravings, etc., than for landscape negatives.

The negative must finally be washed and dried.

Intensifying Collodion Negatives with Quinol.—In 1888 Captain Hubl recommended * the use of quinol (hydroquinone) for intensifying collodion negatives, as follows :

Solution A.

Hydroquinone	10 parts
Citric acid	6 parts
Water	1000 parts

Solution B.

Nltrate of silver	1 part
Water	30 parts

For use, mix 3 ounces of A with 1 of B.

W. Jerome Harrison.

(*To be continued.*)

SOME PRACTICAL POINTS.

(From the "American Annual of Photography for 1892.")

To Remove Yellow Stains from Negatives, take:

Alum	1 ounce
Sulphate of iron	1 ounce
Citric acid	1 ounce
Water	24 ounces

and allow negative to soak in the solution for about fifteen minutes. The solution will keep well for a long time.

A Good Preventive of Blisters is to gently pour into the fixing bath, containing the fixed prints, pure water of the same temperature, stirring all the time, until the fixing solution is very much weakened. Then remove the prints to a weak salt solution, and once more add pure water, until all traces of the salt have disappeared. I have used this method and am very seldom troubled with blisters: but I always take care to have all solutions of about the same temperature.

* See paper by Dr. Eder in *Photographic News* for January 3, 1890.

To Arrange a Handy Packing Box pad the inside with excelsior and coffee sack, or any good material. Make the lid to open on the side instead of the top; it will then fall down and open toward you, and one box can be placed on top of the other, and each one can be opened without disturbing the other, thus forming a set of shelves with lids or doors. The bottles can be set in and small sacks or excelsior placed between them.

A Harmless Method for Removing Silver Stains.—Every photographer, amateur or professional, uses silver nitrate in one or more steps of the picture-making process. Every one knows the ugly black stains left on his fingers and the difficulty in removing same. The old method of cleaning with cyanide of potassium is effective but dangerous, as in handling glass plates the operator is more than likely to cut his fingers, and the cuts, though they be very slight and not noticeable at the time, may yet be large enough to allow some of the cyanide to enter the blood with serious, if not, as has happened, with fatal results.

A new method which is absolutely free from danger cannot but be appreciated. With a tuft of cotton cover the stains with a weak solution of iodine; allow this to remain for three or four minutes, then wash off with strong ammonia. This will leave white, soft, clean hands; and should the skin be cut the stinging of the ammonia need cause no fear, as it is quite harmless, and the pain can be stopped by simply washing the hands in clean water.

DR. JOHNSTON IN AFRICA.

We reported a week or two ago the fact that Dr. Johnston had been heard from through *Gall's Weekly News* letter. Since then an additional letter has been received, or rather a concluding portion of the same letter, which tells more of his actual experiences in detail. As Dr. Johnston makes photography an important part of his expedition, our readers will undoubtedly be interested in knowing some of the particulars of his journey. Unlike most African explorers, Dr. Johnston started from the west coast of Africa and traveled eastward. "On the 17th of July, the first stage of our journey, 300 miles, is over," he writes, "as we reach the headquarters of the English Mission at Kwangulula, under the supervision of Mr. F. S. Arnot, who very hospitably assigned huts in the vicinity of his own compound for the accommodation of our six Jamaica men and myself, while we remained to collect fresh carriers for our next stage inland.

"After a few days rest I went to Komondongo, 30 miles from Kwangulula to visit another American Mission Station. About half-way stands the Portuguese Fort Silva Porto, called on the 'Capitan' to present my compliments and show my passport. Found him very agreeable and polite, showed me round the premises where everything was very trim and orderly. The Fort is gar-

risoned by a force of some 200 slave soldiers. On leaving the Fort I came upon the wagon road made by the Boers during their visit to suppress the late rebellion. And now we travel mile after mile through a country desolate enough at best, but now that every village on the road to within a short distance of Komodongo has been burned to the ground, leaving nothing but the charred palisades and ruins of the huts, the prospect is anything but inviting. The cause of this rupture was briefly as follows: Portugal has long claimed sovereignty in Bihe' and until lately content that her authority be only nominal. Early in last year a few of her soldiers were sent inland and happened to be delayed in Bihe'. The natives who neither knew the power of Europeans nor understood themselves to be in reality the vassals of the Portuguese, were aroused at what they deemed an invasion of their country. They said this means that there are two chiefs and two capitals—one their own chief Chindunduma, the other Captain-General—so they promptly moved against the Captain, who, having but thirty black soldiers with him, wisely retired. General Silva Porto, the representative of the Portuguese, and who had lived at what is now the Fort, and from whom it obtained its name for upwards of forty years on amicable terms with the natives, was so distressed over the trouble that he went to his magazine, took out a dozen kegs of gunpowder, and, making a close of them, lay down in the center wrapped in the flag of his country and applied a lighted fuse to the explosives. The result may be imagined. The government of Portugal could not overlook the affair, and determined to punish the rebels; accordingly, in October a force of Boers with fifty wagons and a company of black soldiers commanded by Captain Piava appeared on the field.

"Mr. Sanders, of the American Mission at Komondongo, apprehensive of coming trouble, and anxious to prevent it if possible, visited the military camp and requested an interview with the commanding officer. This granted, he inquired if there was any message he could carry to the natives, but was curtly told "No." All they wanted was the chief. The foolish Bibeans meanwhile were preparing for war, and as a preliminary step to attacking the white man, had their fettish doctor out to put something in the river, Kakema, that ran between them and the Portuguese camp, that would have the effect of causing instant death to the enemy should they have the temerity to cross the water. To accomplish this the strong medicine was to put in a gun and with much ceremony was fired into the river. The Boers taking this as a signal for attack, rushed up, fired upon them and dropped eleven of the warriors dead upon the bank, the remainder making a hasty retreat. A few days after, the Bibeans attacked a smalls party while engaged in clearing a road for the wagons, but they returned the fire with such deadly effect that a panic seized the people who with the chief fled further North to the Gangellas. The burning of villages now began and every human habitation to the Ombala, the latter included, was sacrificed to the flames. The Ombala was an extensive town covering many acres of land, and had a population estimated at 10,000 inhabitants. A truce was now called of 9 days, and within this period it was required that the chief be found and brought to the camp; failing this, on the expiring of the allotted time the whole of Bihe' would be destroyed by fire.

"Letters to this effect were sent to Mr. F. S. Arnot and to Mr. Sanders, who lost no time in having the roads of exit from the country blocked, and to prevent the escape of Chindunduma, calling a council of the headmen, placed the serious state of affairs before them, obtained their help, and for eight days the country was scoured by the missionaries and their assistants in vain; but when they had almost abandoned hope, on the last day, they found the man so much wanted, cringed up in a small hut, armed with a Martini rifle.

"When Mr. Arnot and Mr. Sanders entered and explained their business, he surrendered and was handed over to the authorities that same night, and the old man is now a state prisoner on one of the little islands on the West coast. If missionaries do sometimes meddle in politics, in this case at least it was well, for through them much bloodshed was averted and an immense territory saved from entire devastation.

"After a long journey and exposure to the sun, I reached Komodongo about dark tired and weary, forgetting it all, however, as we felt the grip of Mr. Sanders' hand and the kindly welcome of his good wife. After two days we returned to Kwangulula. Mr. Arnot, with whom two of the Jamaica men are to be left, is rendering me valuable assistance in obtaining carriers for my next stage, which I expect will be Nana, Kundundu, about forty marches, where other two colored men will remain to aid in forming a Canadian Mission about to be planted there. The remaining two will accompany me further East. It would be premature to say much concerning the probable success of employing these Christian natives of the West Indies as assistants to white men who are or may yet be engaged in opening up Africa to Christianity and civilization, but we can say that in this expedition they have proved themselves hardy, strong, and willing workers, never flinching on the longest march, collecting the loads in camp, pitching or striking tents, cooking for the party or making their own huts every night, and turning their hands to help in anything or everything within their power, meanwhile pegging away at the language of the natives with considerable success. Provided they are placed with *suitable men* they will be invaluable aids, particularly in the forming of new Stations.

"It must be confessed, however, that the terrible change from their own beautiful land of plenty, Jamaica, to this barren wilderness where in all the 300 miles we have traversed we have not seen a single fruit tree, a patch of growing crop, nor scarcely a scrub planted by human hands, depressed them somewhat, and can we wonder if they were sometimes homesick, but this feeling is wearing off and they are trying to make the best of it. Two weeks more and we hope to be on the march once more. News has just reached us that King Misidi is at war, and forbids white men passing through his country, the Garanganze, but we mean to make the attempt. It may be five or six months before I can communicate with the civilized world again, but should we have the good fortune to meet a caravan coming out, the opportunity of writing home will not be missed. Until then adieu."

Notes and News.

The next issue of the PHOTOGRAPHIC TIMES will be the double illustrated CHRISTMAS NUMBER.

"'The Times' is my best and oldest friend in photography," writes Miss Adelaide Skeel.

Who will be the next to contribute to the Maddox Fund? It is growing.

Before a Copy was Seen—Eleven thousand copies (11,000) of "The American Annual of Photography" for 1892, were sold before a copy was seen!

"We are much pleased with the 'Annual for 1892,' and think it goes ahead of any of its predecessors," writes Messrs. Loeber Brothers, of New York, who bought 500 copies.

Thomas J. Bray gives his promised article on "Hand Camera Work," closing the discussion which he started some time ago on this important subject, in the CHRISTMAS NUMBER of the TIMES.

Only Four Thousand Copies of "The American Annual of Photography for 1892" remain out of the 16,000 copies of the original edition. They will soon be gone.

"Around the World."—An interesting and instructive stereopticon exhibition "Around the World," was given at the Fourth Reformed Church, Tuesday evening, November 24th. The illustrated recitations by Profeesor Morrow were especially enjoyed.

The "Buffalo Express" Amateur Photographer's Contest closes December 14th. Over 2,500 photographs have been received in this contest. These amateur photographic contests are beginning to be features of various daily and weekly newspapers.

Felix Reifschneider has sold his interest in the retail photographic stock business now located at No. 299 Broadway, New York City, to Felix Reifschneider, Jr., and Isaac M. Hopkins, who will succeed the old firm under the name of Reifschneider & Hopkins.

Mr. Felix Reifschneider, who recently sold his interest in the retail photographic stock business to his son, Felic Reifschneider, Jr., and Isaac N. Hopkins, is one of the oldest of the dealers in and manufacturers of photographic supplies. With the exception of the Scovill & Adams Co. he may almost be said to be the oldest photographic merchant in this country. He has always been universally respected for his strict personal integrity and upright business methods.

Mrs. Parnell's eldest daughter is an excellent amateur photographer, and before the death of Mr. Parnell she took several pictures of him at Walsingham Terrace, Brighton. The negatives are in the hands of a local photographer, and although everybody is anxious to get a copy of these latest pictures of him, it is probable that such natural impatience will have to be restrained, as it is expected that they will be kept for the forthcoming biography of the dead patriot. A particularly happy picture is one which represents him seated in his arm-chair close to a table, on which are a pair of scales and a mortar—the former emblematic of the justice he was always seeking for his country, and the latter of the fighting he meant to do to obtain.

"Winter Evenings and How to Spend Them," suggests to W. I. Lincoln Adams in *Outing* for December some useful observations. He says: "In the old days it was considered necessary to employ a very expensive foreign lantern for projecting photographic slides upon the screen, and as a consequence very few amateurs could indulge in this most fascinating manner of exhibiting their work. More recently it has been found that an instrument costing, say, $30, answers every purpose for the parlor or small lyceum, Of course, with such an instrument ordinary petroleum light is used in place of the calcium light employed with the large expensive lantern. But the yellow light from the petroleum oil is not only very agreeable to the eyes of the beholder, but is entirely satisfactory for most purposes. The introduction of these cheaper lanterns has undoubtedly had much to do with the widespread adoption of lantern-slides as a means of reproducing negatives."

The Masculine Photograph that She Carried in Her Locket.—I am a locket. I hang about Julie's neck by a piece of narrow ribbon. The two men before the fire have both seen me before, writes Johanna Statts in *Truth*. Jack is thinking of the blaze of the August sun that day on the sands, where he helped her cut his photograph to fit my circle. He is thinking he has neglected her lately. Poor Julie! Yet in the bottom of his heart he loves her still. He does not know that Tom, who is looking at me now, has a fresher memory. For his is of September. It was a foggy evening, and in coming down the mountain path they walked closely side by side—he and Julie—and he gave her his picture that night when they parted. And as soon as she had locked her door she put it in her locket. She used Jack's to measure with in cutting the card.

"If you will excuse me I'll call papa. I think some man in the library is waiting to see him on business." And Julie smiles brightly as she leaves the room. As she does so I fall thinking to the floor ot the feet of the two men. It is very careless of me. Two heads collide.

"I beg your pardon, Tom."

"Not at all, Jack."

"I will keep the locket till she returns."

"Thanks! But I confess to a personal interest in that locket."

"You? When it holds my portrait!" (smiling).

"Your portrait!" (smiling also). "Hardly!"

"You insinuate—"

"That it holds my own."

A moment's pause. Both hiss: "Prove it!" My lid flies open. A sigh—two sighs.

"He wanted to 'see papa,' Jack."

"Yes, Tom—and on business!"

The face is that of the man in the library. They are not in it.

HOW TO USE THE HAND-CAMERA.

1. Be careful to have some thing within the range of your camera before you make the exposure. Green grass and blue sky are beautiful to look upon, but come out very unsatisfactorily on the negative. I have before me a negative made with one of the daintiest cameras I have yet seen (the Triad), in which about three-fifth of the glass

is sky, the rest is green lawn, and in the middle is a figure about half-inch long. On the finder, doubtless, this scene looked very beautiful, but in black and white it is about as unsatisfactory as can be. Had the amateur got nearer, and made the figure to cover a larger space, the result would have been much more satisfactory. The same thing should be observed in making marine views. Don't press the button unless the object is near enough.

2. Consider whether the view you are about to make is worth making at all. If you have some doubts in regard to your artistic perception and cannot decide firmly from that standpoint, figure it out in cents. Is the view worth the 5 cents which the plate costs? If not, look further on.

3. Be sure you have light enough. Groups in deep woods and the baby on the back piazza will be failures unless you can make time exposures. Weigh well your desire to make a good negative, place against it your desire to please your friends who think they know all about it, and don't let the latter get the best of the former.

4. Many negatives are apparently out of focus, when the indistinctness is caused by movement of the camera at the time of exposure. This can only be remedied by a steady hand.

5. The grand caution which includes all others is "go slow." Better expose one box of plates and have ten good negatives, than four or five boxes and all failures, even though it takes a year to do it.

I know of one amateur who has had a hand camera about a year. He has exposed less than a dozen plates in that time, but is satisfied in having every negative thus far a good one, or, as he expresses it, a "sparkler."

Should every amateur follow these suggestions there would be several things which would surely follow:

1. There would be fewer disgusted amateur photographers.

2. More hand-cameras would be used.

3. The makers of small plates would make smaller sales.

4. The amateur would be less the butt of ridicule than at present.—*L. L. Anderström, in the American Annual of Photography and Photographic Times Almanac for* 1892."

A NEW PHOTO-ZINCOGRAPHIC PROCESS.

THE method that we propose is a modification of the so-called albumen process. The facility and rapidity with which it allows the obtaining of prints of great delicacy, with slight hollow lines, and the use of a positive instead of a negative photograph, constitute incontestable advantages which induce us to make it known. The greater number of the processes now in use require reversed negatives, which should be at the same time transparent and strong, conditions sometimes difficult to obtain; moreover, the manipulations to which they give rise are delicate, and only lead to satisfactory results after long practice. Our method is not so exacting, and by carefully conforming to the following indications it is possible to surely obtain images free from all defects and capable of furnishing excellent lithographic prints, or of being converted into blocks suitable for typographic printing. The following solution is prepared:—

Water	1,000 parts
Albumen of eggs	100 parts
Bichromate of ammonia	3 parts

Ammonia in sufficient quantity is added to produce a light yellow color. The mixture is strongly agitated, filtered with care, then spread by means of a revolving disc over a polished zinc plate previously cleaned with whiting. As soon as a thin, even albumen film is obtained, it is necessary to hasten the drying by slightly heating the plate. It is afterwards exposed to the light under a positive, then, the exposure being judged sufficient, the zinc plate is removed from the frame and coated by means of the roller with a slight layer of transfer ink, to which medium varnish has been added. The quantity of varnish to be added must be found by experience. The appearance of the coating should then be dark-gray, without any visible sign of the image, and not black. After immersion in tepid water the print soon shows itself, and it may easily be cleaned by lightly rubbing the surface of the zinc with a tuft of cotton.

The image thus obtained is a negative, and the metal is exposed in the parts representing the black lines of the orignal. The albumen, in fact, has remained soluble in the parts protected by the corresponding line of the positive screen during the exposure to the light. The plate is then rinsed in abundant water, dried, and plunged into a solution of perchloride of iron at 35 deg. Baumé, in which it is allowed to remain for from ten to fifteen minutes. It is washed and then dried. By afterwards passing over the zinc, heated to about 122 deg. Fahr., a roller coated with an ink composed of transfer ink and medium varnish, the ink adheres to all the surface, and we obtain in this manner a black picture; the background is then freed by means of a smooth roller passed rapidly and frequently over the plate. The coating is now rubbed with a piece of soft rag soaked in caustic ammonia. The image appears in black, detaching itself from the brilliant background formed by the zinc. During this operation the bichromatized albumen, rendered insoluble by the light, is in its turn dissolved in the ammonia, and thus is obtained a second development, the reverse of the first. By the rubbing and the aid of the ammoniacal liquid the ink is removed from the parts where it was supported by the insoluble albumen, whilst this ink remains attached to the zinc in the engraved portions. It is this last reaction which is the basis of our method, and which constitutes its novelty. We may add that it is very curious to witness this conversion of the primitive image under the action of the ammonia. The solutions of potash, soda, etc., or of their carbonates, do not give such good results, probably on account of the saponification of certain elements entering into the ink used, and also because these substances do not possess the considerable diffusive power of ammonia. If the plate is to be used in a lithographic press, nothing remains to be done but to prepare it in the ordinary manner by means of the gallic, phosphoric, or chromic solutions. If, on the contrary, it is to be placed in relief, it is necessary to dust the image with pulverized resin, then to heat as usual before proceeding to the first biting. In this last case it is preferable to shorten the time of the immersion in the perchloride of iron, so as to avoid the formation of the too apparent lines in the portions which finally are to be in relief.—*Le Moniteur de la Photographie*, translated in *Photography*.

It has been estimated that about 60,000 pounds of nitrate of silver is yearly used in the United States alone to sensitize albumenized paper.

Photographic Societies.

PHOTOGRAPHIC SECTION OF THE AMERICAN INSTITUTE.

MEETING OF DECEMBER 1, 1891.

PRESIDENT H. J. Newton in the Chair. Mr. A. D. Fisk exhibited a new cylinder for oxygen, much smaller in size than those usually employed to furnish oxyhydrogen for the use of the optical lantern, but the one shown contained the oxygen in a very much condensed or compressed state, and under a pressure of 1,800 pounds to the cubic inch. After a full explanation of the apparatus and its use, Professor Laudy, of Columbia College, took the floor and spoke exhaustively on experiments made with oxygen, the history of its discovery, the methods of making it for analytical and laboratory use and that of manufacturing it on a large scale, and advised the audience to be present at the meeting of the Polytechnical Section when Mr. Chase, a manufacturer of condensed oxygen, will speak in detail on the subject.

Professor Charles Ehrmann compared the old methods of developing the latent image with those more recently introduced, and took occasion to subject the newest of them, the para-amidophenol, to a severe criticism. This developer is yet quite new to us, he said, and but few photographers have any experience with it beyond a few experiments made. He and a few others in America had, however, devoted much time to experimenting with the substance and found that in many respects it is equal, and in several superior to any other reducing agent employed in photography; not only does it, in differently prepared compounds, develop the plate rapidly and with all possible detail and printing quality, but he found that a much shorter time of exposure is required by it than even eikonogen. As para-amidophenol resists oxidation under the influence of atmospheric air, a deterioration or yellowing of the film is entirely obviated, and for that is it the safest method yet devised to develop upon gelatine plates black and white negatives for the photo-engravers use. (Negatives shown.) These were among the first results of experiments made with para-amidophenol.

Afterwards arises the question: Is the developer of the same force to produce finely-detailed half-tone negatives? This question, he said, could be emphatically answered in the affirmative, which, to prove he exhibited landscape and portrait negatives developed in the manner described.

He had understood many, desiring to use the new developer, abstain from doing so on account of its high price, but he said that would soon find the same level as that of other organic developers. After the first importation of the article its price fell about 75 per cent., and since then another reduction about of the same amount has been reported.

Mr. Fisk then exhibited a large number of lantern-slides developed by Professor Ehrmann with para-amidophenol upon Carbutt gelatino-albumen plates, and several collections made by members of the Section on dry and wet collodion and gelatine emulsion plates of different description.

Mr. E. Bierstadt exhibited a heliochromic print in three colors, printed without black or neutral tone, showing a brilliancy and richness of color-tones probably never obtained before.

The Lantern-Slide Exhibition at the Society of Amateur Photographers' rooms (New York), Friday evening, November 27th, was a very pleasant entertainment, and was thoroughly appreciated by a large audience. Mr. J. Wells Champney was the lecturer and about 150 slides were shown. Among those represented by slides were Mr. Ruppert, Dr. Laudy, Mr. Tieman, Miss Barnes, Miss Slade, Mr. Young, Mr. Whitehouse, Mr. Van Brunt, Mr. Post, Mr Warren, and one by Mr Wells.

The Editorial Table.

Another Edition of "How to Make Photographs," which contains a descriptive price-list of materials for the amateur photographer, attests the vitality of this popular pamphlet. It is dated November, 1891, and contains descriptions of many new goods and a complete list of photographic books, in addition to the regular descriptive price-list of ordinary hand and tripod cameras, lenses, exposing shutters, and specialties for the amateur. It may be obtained gratis by addressing the Scovill & Adams Co., 423 Broome St., New York City.

A Canadian Photographic Journal is announced. It will be a monthly publication devoted to the interest of both professional and amateur photographers of Canada. "For several years," the announcement reads, "there has been a feeling that a journal of this kind should be published in this country, and after considerable inquiry among the photographers of the Dominion we have considered the moment opportune, and shall be in a position by January 1, 1892, to issue our first number." It is to be illustrated each month with a full-page picture.

Mr. Carbutt has sent to this office two panoramic photographs from film negatives 18x48 inches in size, made by Mr. William H. Rau, of Philadelphia, on Carbutt's ortho celluloid films. They have been framed and are on exhibition here. They will be shown at the rooms of the Society of Amateur Photographers of New York on their next regular meeting night. The subjects are "The Horseshoe," on the Pennsylvania Railroad, and "Alligrippus," on the same railroad. A colored print of "The Horseshoe," in the window of Porter & Coates, on Chesthut Street, Philadelphia, daily attracts the attention of many passers.

Photographische Optik, by Antone M. Haschek. Wilhelm Knapp: Halle a/S.

It is scarcely a year since the want of a good and concise book on photographic optics, written in popular style, was severely felt and publicly expressed. Since then quite a number of such books have been published in several languages, none of them, however, surpassing that before us now. In it we find the fundamental laws of optics exhaustively treated and the construction of photographic objectives distinctly described. The laws governing the selection of lenses for different purposes, and how to test them for quality, projection apparatus, the sterreoscope, etc., etc., are attentively spoken of also what many

similar books have entirely omitted. Photometry and sensitometry also have found a sufficient space.

We recommend this book to all studious photographers. The libraries of photographic societies should certainly add it to their collection.

"'**L'Eclairage dans les Ateliers de Photographie,**' *par M. Duchochois*; *traduit de l'édition Américaine, par M. C. Klary*—1 *vol*, 3 *fr*," is announced as No. 8 of the "Bibliotheque Generale de Photographie," published under the direction of Mr. Abel Buguet, at 4, Rue Antoine Dubois, Paris.

This is the first of the "Scovill Series" to receive the honor of translation, and the publishers will need to avail themselves of the protection of "international copyright," at this rate.

Photography Applied to the Microscope. New York: E. & H. T. Anthony & Co.

This is a little book of sixty pages, well printed on good paper, and neatly bound. It is a practical guide for the instruction of microscopists in the application of photography to their science, and is written by F. W. Mills, a member of the Camera Club. A chapter on Mounting, by C. C. White, adds value to the little book. It is illustrated with cuts, and a frontispiece from a photomicrographical negative. It will serve a useful purpose in supplying those who cannot afford Mr. Pringle's larger and completer work on the subject, "Practical Photo-micrography."

The Photographic Image, by P. C. Duchochois.—Mr. Duchochois is a photographer and writer of experience, and a close observer, hence his works, of which he publishes several, are valuable, and money spent for them will prove a judicious investment, and we advise any one who has trouble with developing to read this book. Practical formulas are given in every department which render the work doubly valuable.—*St. Louis and Canadian Photographer.*

"**Will be Delighted.**"—The many admirers of Bishop Philips Brooks will be delighted with the admirable portrait of him which adorns the PHOTOGRAPHIC TIMES for November 6. It is made from a negative taken a few years ago by Gutekunst, which has never heretofore been reproduced.—*Fremont Journal.*

Record of Photographic Patents.

464,059. Photometer and Actinometer. Louis H. Barker, Williamsport, Pa.

464,260. Photographic Camera Shutter. Abner G. Tisdell, Brooklyn, N. Y.

464,359. Device for Copying Pictures. Levi A. Hagan, Little Rock, Ark.

464,384. Tripod. Samuel J. Osborne, Alleghany, Pa.

464,462. Lens Supporter for Photographic Camera. Charles Mills, New York, N. Y.

464 471. Tripod. Julius L. Brown, Atlanta, Ga.

Queries and Answers.

179 SUBSCRIBER writes: Can you give me through the medium of your valuable paper a recipe for making blue paper transparent. I have seen such a recipe somewhere, but cannot place it. There was a sample of what I want on exhibition at the American Institute Fair, and I think was called a cyanotype.

179 *Answer.*—Take a gelatine emulsion plate, one that has been light-struck will answer, or a carbutt flexible film, fix in hyposulphite of sodium, wash well, allow all superfluous water to drain off, and sensitize with the ordinary cyanotype solution. See Standard Formula No. 106, page 272 "American Annual of Photography for 1892." The Carbutt films are well adapted for the process, because of their flexibility and the possibility to watch the progress of printing, which cannot very well be done with a glass plate without the use of a photometer. Owing to the action of the ferricyanide of potassium upon gelatine, it takes an enormously long time to print. The picture seen in the fair of the American Institute was probably made by this method.

A much easier way to attain the same effect is to print upon a Carbutt A or transparency plate an ordinary diapositive and develop slightly, but to a faint image. After fixing and thorough soaking, intensify and color with uranium nitrate and ferricyanide of potassium, with the addition of acetic acid, as described for the toning of bromide prints on page 583, PHOTOGRAPHIC TIMES, Vol. XXI, when the color of the deposit will assume a brownish red. Immersing the plate after slight washing in a solution of ferrous sulphate 1 in 10, acidified with acetic acid, will turn it to a beautiful blue without impairing the undeveloped portions of the picture.

180 S. F. H. writes as follows: (1) In using the toning bath as per formula on the packages of Omega paper, I find it tones very slowly, much slower than the ready-prepared solution. I use the one containing common salt, 60 grs. I have also used the other, containing sulpho-cyanide ammonium, but can find little difference, if any, in its activity. (2) Does the chloride gold require to be made neutral before adding it to the solution of hypo and alum?

180 *Answer.*—(1) We cannot vouch for the working of a solution which is not of our own making. We recommend to use the formula on page 194, PHOTOGRAPHIC TIMES, Vol. XXI, which is without sulpho-cyanate; it works well, proving the presence of that salt being not at all necessary in a combined fixing and toning bath. (2) Not at all necessary.

181 F. E. FAIRBANKS writes: "Will you please inform me in the Questions and Answers column in relation to sulphite of soda. 1. Is the granular forms more stable than the crystals, and is there any method of easily testing it for purity? 2. Is the change to sulphate rapid? 3. And is it attended by any *visible* change?"

181 *Answer.*—We think the granular form is, because of the absence of water. Sulphite of sodium may contain carbonate or chloride of sodium. When carbonate is present, red litmus paper will be tinged blue, turmeric paper brown. The presence of chloride may be detected by the well known silver test. 2. No. 3. It is not. But when the salt delinquests, the change into sulplate has doubtless taken place.

READY!

As announced, December 1st,

IN TIME FOR

Christmas Sales.



The first edition of this popular Annual is **16,000 copies,** but the advanced orders are so large (over twelve thousand copies being already sold), that the entire edition promises to be exhausted at an early date.

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ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
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423 Broome Street, New York.

Commercial Intelligence.

ENTERPRISE!

"WE HAVE OFTEN WONDERED," say the publishers of "The American Annual of Photography," "why so many more copies of the book are sold in one section of the country than in another, apparently, as good a section for the sale of books.

"A circular which we have just received from an enterprising Western firm goes far to show why this should be true.

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But here is the circular:

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THE AMERICAN ANNUAL OF PHOTOGRAPHY

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We are notified by the publishers of the "Times Almanac" that the shipment of our order will be promptly made from the first issue, December 1st.

If you wish to secure a copy please fill out the enclosed order and return to us.

Cross off the manner in which you do *not* want it forwarded.

Yours very truly,

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Gentlemen:

Please { Mail / Express / Include with first shipment.

One copy of the American Annual for 1892.

Paper Cover ..... $ 50
Cloth Cover 1 00

Enclosed please find { Stamps / Money order / Postal note.

If desired by mail please add 15 cents extra for postage.

MR. JOHN A. POLLOCK withdrew from the firm of Pollock & Riker, on the 1st instant. The business will be continued at 416 Sixth Avenue, New York, by J. N. Riker and T. Dickinson, under the firm name of Riker & Dickinson. They assume all liabilities of the old firm. John A. Pollock will hereafter be located at 198 William Street, New York.

Studio Changes.

Los Angeles, Cal. Lawrence & Son have sold out to George N. Dewey.

Montreal, Quebec. William Notman, of the firm of William Notman & Son, is dead.

Tillamook, Oregon. A. G. Reynolds has discontinued.

Lewiston, Pa. James Smith is dead. Succeeded by John Locke.

Hamilton, Ontario. Huffman & Orth burned out.

Business Notices.

FROM THE TWO LARGEST HOUSES IN THE COUNTRY.

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FOR SALE.—The finest gallery in Detroit; located on the best street; 16,000 negatives; cabinets $5.00 per dozen ever since it opened; a splendid chance for a good man. Must be sold at once. Good reasons for selling.
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FOR SALE—LARGE PHOTO LANDSCAPE PUB. HOUSE.—Thousands of original view negatives, complete plant, including building 25x150 feet. Part second and third stories, and good ground lease. A long established business; large amateur and Kodak trade. Good skylight and operating room on second floor, used for commercial work, can be easily refitted for first-class gallery. For sale very cheap. If you mean business address
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Water	32 fluid ounces

Heat the water to 150 deg. F.; dissolve first the sulphite of sodium, then the para-amidophenol, and finally the carbonate of sodium; filter, and keep in well-stoppered bottles. With ordinary caution this solution will keep indefinitely.

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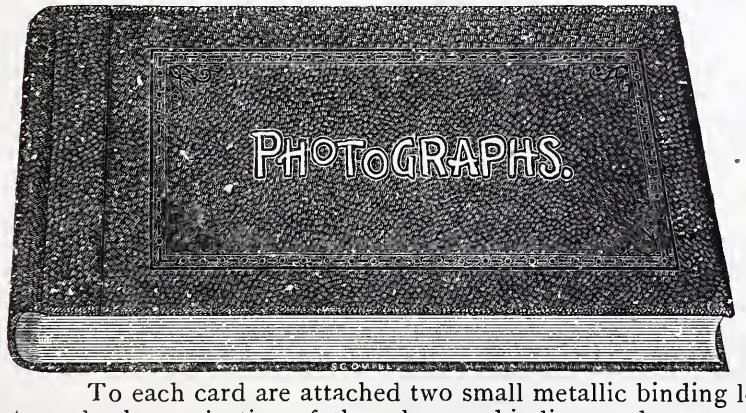
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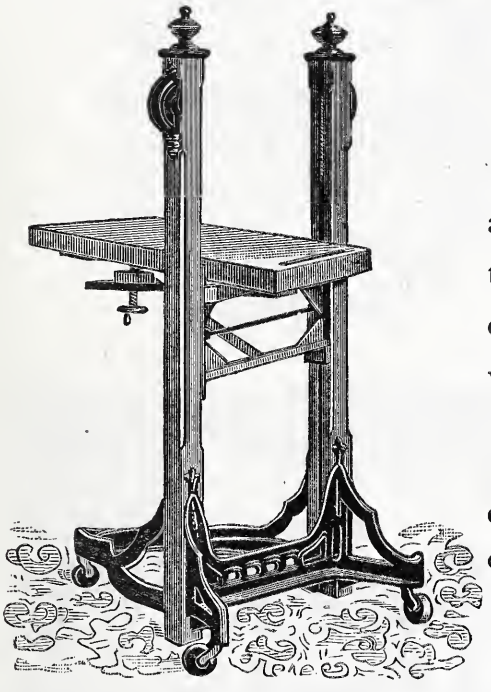
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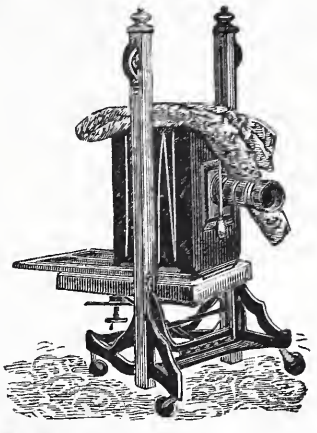
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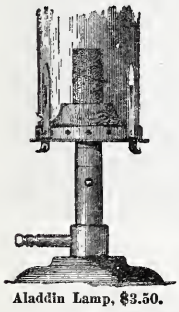
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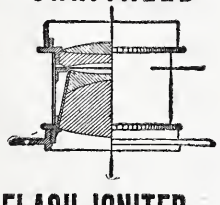
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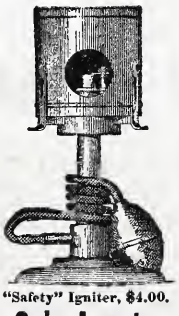
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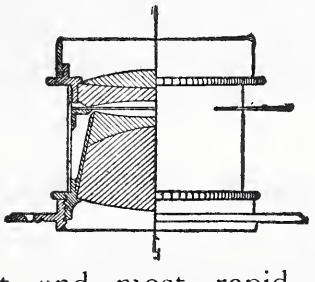
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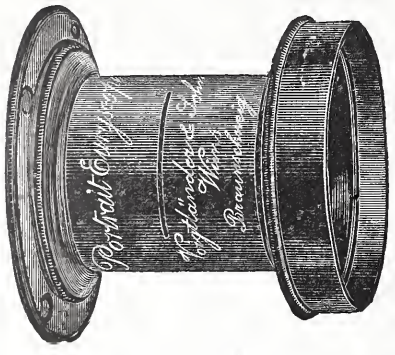
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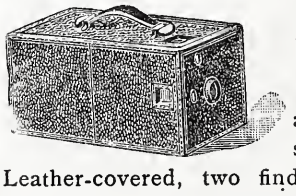
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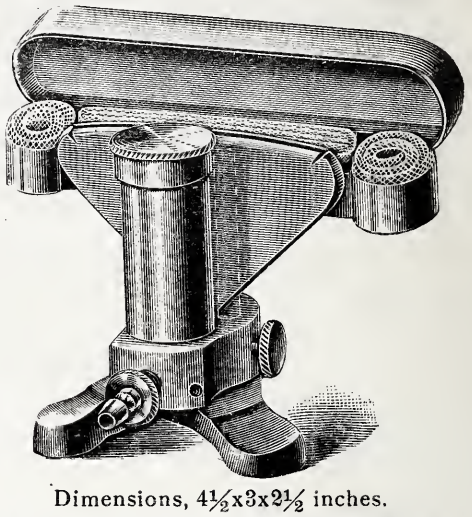
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N.Y. PHOTOGRAVURE CO.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, DECEMBER 18, 1891. No. 535.



"Merry Christmas."

WITH the pretty subject of Miss Clarkson's picture, which forms a frontispiece to this number of our magazine, we wish all our readers

A MERRY CHRISTMAS.

May the cordial feelings and pleasant relations which have existed between readers and editors throughout 1891, and many preceding years, be cherished by all throughout the year to come and the many years to follow.

To a Baby's Photograph.

TWO chubby shoulders, fit to clasp in arms,
Two chubby cheeks to kiss:
Seen near the blessed Christmas, childish charms
Bring wreaths of thought like this:

O holy Christmas night, whose sweetness hence
Flows on until this hour,
What may have been the lovesome bud from whence
Sprang out a Glorious Flower!

Lilla R. Ramsdell

A REVIEW OF THE YEAR.

WITH the approach of a new year it is often pleasant and profitable to turn one's thoughts backward over the year which is drawing to a close. Let us, therefore, at this time briefly review the events of 1891 which are of the greatest significance to photographers, and which mark most distinctly the progress which has been made in our gentle art.

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In scientific research photography has extended its field of usefulness. Photogrammetry, hitherto slightly understood and little used, has become better known and is being more generally employed in the construction of maps, ground plans and representations of architectural elevations. By its means the height of cloud strata may be calculated and other celestial phenomena accurately determined. In astronomical photography wonderful things have been done. Spectrum photographs of single stars have been made; nebulas invisible to the human eye have been dissolved, and the orbits of comets have been described by means of photography. In medical science the photographic camera has rendered most valuable aid; faithful pictures of the effects of various diseases are made and kept as a record for future reference. The camera has become an indespensable accessory to every well-fitted museum or institution of learning. Every scientific expedition has its official photographer, and the camera has a place on every vessel of the national navy.

In the preparation of the sensitive surface no distinct improvement has been made, though we might mention as an exception, perhaps, Gaedike's dry collodion plate, which is said to equal in sensitiveness the most rapid gelatine emulsion plates. The great excitement caused by the alleged discovery of photographing natural colors by physical means, attributed to Professor Lippman, of the Paris Sorbonne, has subsided on the want of substantial evidence to confirm the reports. We may say that no distinct progress has been made in this direction since the time of Bequerel, though many have been the newspaper announcements that the beau ideal of all photographers has at last been attained.

In the important branch of photographic work, the development of the latent image, several new agents are to be reported. Para-amidophenol, which has been fully described in these columns, seems to have "come to stay," and promises to be "the developer of the future." Eikonogen, however, has become widely popular, and in connection with hydrochinon, has yielded excellent results. Pyrogallol has by no means been entirely superseded. We understand that in spite of the new developing agents which have been brought forward the "old reliable" pyro has been used in larger quantities by photographers this year than in any one year before. A perfectly rational method of developing, adopted by a well-known German scientist has been made known. He uses a solution of minimum strength as low even as .23 of a grain of pyrogallol to one ounce of solution, the development proceeding with the exclusion of air. It naturally requires many hours to complete the process, but failures seem to be entirely out of the question when the method is conscientiously employed. In orthochromatic, or more properly speaking, color-sensitive photography, steady progress has been made in this country. But the names applied to these plates are as confusing as they are non-descriptive—orthochromatic (correct in color) certainly is not an accurate name, while isochromatic (of equal color) is also a misnomer. Orthosciographic (correct in shade) perhaps comes nearer to being correct, but why not employ the English phrase, "color-sensitive," which is truly descriptive.

Printing methods by chemical and mechanical means deserve, and are receiving, the strictest attention of both professional and amateur photographers. Printing on albumen paper has by no means been superseded, though many new methods have entered the field as rivals of it. "Aristo" and "Omega" papers have been largely used; but, as in the case of development, so may we record here, that the old method (albumen paper) has been used to a greater extent this year than ever before. The widespread growth of photography, however, undoubtedly accounts to a great extent for this. In bromide printing a new feature has been introduced which will increase the demand. We refer to the automatic printing machines by which 600 prints may be made from one negative in an hour, all of absolute equal excellence. The cost of platinum retards many photographers from adopting the beautiful process based upon that substance. Plain and mat surface papers are growing in popularity, and the kallitype (printing with the salts of iron) has made steady progress.

Until recently little has been done with photoceramics, though formulas for the process have not been wanting. Lately, however, Americans have taken hold of this interesting branch of photographic work, and, not being satisfied with monograms have produced with pigments photoceramics in colors of marvelous beauty. The limited sensitiveness of asphaltum has always been an obstacle to its being employed in photomechanical processes. Valenta, of Vienna, has found a method of sulphurizing the fossil resin, and thus increasing its sensitiveness to light. Dr. Müller-Jacobs, of New York, has prepared sulphurized films of ordinary North Carolina resin to as high a degree of sensitiveness as that usually attained on a collodion or silver emulsion film.

Interest in educational photography is still mainly represented by the Chautauqua School which continues in a flourishing condition, steadily increasing in reputation, usefulness, and the number of its students. Four other schools have been established in as many local Chautauqua Assembly Grounds, and the University of Ann Arbor, Mich., has instituted a school of photography under the direction of a Chautauqua graduate. The larger schools and colleges of the country, with few exceptions, have classes in photography and photographic instruction.

Photographic literature has been augmented by several important new works, among which we might mention a work on "Photographic Optics," by W. K. Burton; "Photographic Roproduction Processes," by P. C. Duchochois; "The Photographic Image," also by Mr. Duchochois. There have been beside many new editions of older books, including "The Photographic Instructor," "The Modern Practice of Retouching," "Phototypers' Guide," etc. One or two periodicals have ceased to exist, but those which remain, with few exceptions, are managed with greater energy, and are growing in usefulness and influence.

The apochromatic and antastigmatic lenses of Carl Zeiss, of Jena, Germany, and the new rapid rectilinear lens of Gundlach, Rochester, may be reported as decided advances in photographic optics. Among the novelties in photographic apparatus which have been introduced during the year, we might mention as perhaps of greatest importance to the photographer, the Acme Burnisher, Caswell's Background Holder, the Henry Clay and Irving Cameras, and a new Book (hand) Camera, which has just been put upon the market.

During the year death has made sad havoc in photographic circles. Many distinguished photographers have been taken away. They have been spoken of from time to time in these columns, so that now we may merely recall their names: Edmund Bequerel, whose researches in theoretical and practical photography are of the greatest value; the great optician, Dr. Joseph Petzval, who constructed the first portrait lens; the genial physicist, Dr. Siegmund Stein; John Whipple, of Boston, who made the first glass negative in America; the learned Dr. H. D. Garrison, of Chicago, dry-plate maker, scientist, and photographic investigator; R. A. Lewis, James Forbes, W. C. North and William Notman, widely-known photographers; and S. J. Dixon, the athlete and photographer of Niagara fame.

Editorial Notes.

WAKE UP—The age is one of rapid progress—and we are in it. Our patrons are among the most progressive of the nation. They are quick to take advantage of a good offer. We make a great many; but when we recently offered a set of the memoirs, either of Grant, Sheridan, Sherman, McClellan, or Lee, in their respective original editions for 70 cents a set, in connection with a year's subscription to the *Cosmopolitan Magazine*, $3, and a year's subscription to this paper, $4—$7.70 in all—we fairly outdid ourselves.

A great many orders have already been received by the publishers, so that if our friends wish to avail themselves of this extraordinary opportunity, they must wake up. No such offer has ever before been made to the reading public, and it is doubtful if it will ever be duplicated.

The Discussion on Hand-Camera Work which was started in this magazine by Mr. Thomas J. Bray, of Warren, O., several weeks ago, has been followed with a good deal of interest by our readers, judging from the letters we have received, as well as by the articles on the subject which have been contributed to these columns. After following closely the articles on the subject which have been contributed from time to time by various readers of The Times, Mr. Bray prepares his article on the subject to close the discussion. We take pleasure in calling the attention of our readers to the article which appears in this number. It describes in detail and completely Mr. Bray's successful method of using the hand-camera.

Squeegeeing Prints with a Clothes-Wringer.—Our valued correspondent, Mr. Thomas J. Bray, of Warren, O., describes in a recent letter the following plan, "which makes a pleasure of a drudge," as he says

"Having a large number of prints to squeegee onto plates the other evening," he writes, "I got tired of the wet, sloppy work and set about me to improve on the apparatus in use. An ordinary clothes-wringer suggested itself to my mind, and I tried one at once with gratifying success. I can therefore recommend it to my fellow amateurs. It is a clean, easy way to do the work and it leaves the plates and prints very dry and in close contact. Fasten the wringer so that the drip will lead into the sink. If the wash-water be muddy or gritty wipe off both sides with a clean soft sponge and this will insure clear surfaces. Try it and you will like it."

A NEW AND RATIONAL METHOD FOR PREVENTING BLISTERS ON ALBUMEN PRINTS.—A new and rational method for preventing blisters on albumen prints has recently been proposed. It is based upon the theory that blisters occur from insufficient coagulation of the film, insufficient concentration of the silver solution, or too brief a floating of the paper upon the sensitizing bath. The beneficial influence of alcohol and its coagulating action on albumen has long been known, but the author of the new method proposes a much cheaper means for accomplishing the same end. Immediately after removing the print from the frame he immerses it for a few minutes in boiling water. Here perfect coagulation of the albumen films at once takes place. The boiling water changes the color first to a bright red, but without any detriment to the tone subsequently obtained in the cold bath. After fixing and drying no difference in the general appearance of the print, treated in this way, can be detected from these toned and fixed by the usual method, with the one exception, perhaps, that the gloss of the print is considerably enhanced by the new process.

OUR ILLUSTRATIONS.—We promised three full-page pictures in this number; we are giving four pages and six pictures, or just double the number promised.

The "Merry Christmas," of Miss Clarkson, needs no word of comment. It literally "speaks for itself." So do the pictures illustrating Mr. Stillman's interesting account of "A Cool Retreat" in Italy. But it is only fair to say, in calling attention to the excellent process of reproduction employed by the Mound City Engraving Company, of St. Louis, who will be remembered as the makers of "Fast Friends," in our Summer Convention Number, that the negatives were on films (so as to be sent by mail), and therefore are not suitable for the best results with this process, which is engraving on zinc.

The pictures "About Mount Hamilton" are fully described by Professor Burnham in his entertaining article.

"An Old Cabin Home," by Mr. Eickemeyer, has already been reproduced, but by a process which did not do justice to the negative. The present reproduction, by the New York Photo-Gravure Company, however, brings out all the beauties of the original negative. It is a characteristic picture of the South at this season of the year, and is, therefore, especially appropriate in this number of THE PHOTOGRAPHIC TIMES

THE MADDOX FUND.—We are glad to see the American photographic press endorse our efforts to collect a goodly sum of money from American photographers for this worthy cause in so hearty a manner. Both the *American Journal of Photography* and the *Photo American* for December, in an extended editorial, present the matter to their readers, and call for subscriptions. The *Beacon*, as we have already noted, has taken hold of the matter and will continue to promote its interests. The editor of *Wilson's Photographic Magazine* promises to assist in his usual generous way, and we feel sure that the other photographic periodicals of this country will not be far behind.

ABOUT PRINTING AND TONING.

WHEN examining the very beautiful exhibits made by the members of the New York Amateur Society at the late Fair of the American Institute, I was surprised to see the indifference displayed in the selecting of printing methods to suit the peculiar qualities of the negatives. I am no stranger to very poor prints made from excellent negatives, and, in my capacity as instructor of a photographic school, am almost daily called upon to criticize very severely prints made carelessly and without proper thought.

When we inquire into the reasons why inferior prints are so frequently made from excellent negatives, we must look first, perhaps, to the printing method adopted. Without pronouncing here in favor of any particular process, I may say that the method must be chosen which best reproduces the peculiar properties of the negative.

A negative clear in the shadow, sufficiently well covered in the lights and middle tints should always yield a print, which is a perfect copy of it in every detail. But how often do we meet with almost total failures in this respect; from clear negatives we see fogged proofs, those of a harsh character render prints still more so; and as to color or tone they are made without the least discrimination, not at all corresponding to the character of the subject represented. To print from landscape negatives requires a great deal more than merely to expose the paper under them to light. Some portions of the plate must be covered up or stopped out entirely; others printed much longer than the rest, skies must sometimes be introduced, foregrounds shaded off, and ripple be printed in large and plain sheets of water.

If we adopt albumen paper sensitized by ourselves to be the medium to print upon, we have

the means to modify some ill-effects in printing, or to correct others by increasing or reducing the concentration of the silver bath or by fuming the sensitized paper for a longer or shorter time in the vapors of ammonia. Prolonged fuming will make a weak negative print more brilliant, and a harsh negative yields a better detailed proof on paper fumed less or not at all, provided the bath be of sufficient strength.

A great obstacle to amateurs' printing efforts is the want of density in negatives, mainly in those taken by instantaneous exposure. I do not pretend to say the American doctrine of making sufficiently dense negatives by development merely, and without resorting to after-intensification is entirely right or wrong; but as the final result of all our work is judged of in the finished print, I cannot see why so many of our amateurs bother for hours and days printing from feeble and poor negatives, when a judiciously applied intensifier will aid to make from the same negatives, prints of brilliancy and depth of tone.

The French and the Germans are more liberal in the employment of intensifiers than we are, and many of their best photographs are not printed from negatives legitimately made, as we say, but from those intensified.

Making good prints from feeble negatives we have been materially assisted by chloride of silver emulsion papers, and, since upon them a tolerably good print can be made, our amateurs have adopted these methods with much avidity.

Chloride of silver gelatine emulsion prints and a few collodions were represented in the amateur exhibition of the Fair, but very few of them were good, I am sorry to say. The majority of them were of a greenish-black color, with decidedly yellow whites, and others were of a decidedly red tone.

Prints on emulsion paper should be toned and fixed in separate solutions, when the results will be good, and the prints of better durability. The combined bath, such a great convenience to many amateurs, may give equally good tones when judiciouly handled; but whether or not these prints are permanent, will, after a short time (after they have attained to an age of one year or two), be established to our sorrow or satisfaction.

The greatest obstacles to toning in the combined bath may be easily overcome by applying common sense and caution, and by not exceeding reasonable economy in the use of the bath. To watch the process of toning the print should not be examined by reflected but by transmitted light. When the tone begins to turn purple on looking through the print, arrest toning by copious washing. To merely immerse it in water will not do, the whole of the gelatine film being permeated by the bath, toning continues for some time, and produces finally a different color from what has been intended. But when the print is allowed to remain in the bath till quite black, sulphuration has taken place; the whites become of a nasty yellow tone, and, when dry, assume that "tintypish" character, which we saw so many possess at the Fair.

It is a great error to print from small, feeble and instantaneously taken negatives upon platinum paper. With all due regard to what this paper is capable of doing with pictures of large dimensions, when broad light and shadow effects of rare beauty can be obtained, the same method is entirely out of place when applied to small negatives.

With matt surface silver prints the same holds good, and, although for portraits and genres of at least 8 x 10 size, they are very artistic, toned bluish-black either with gold or platinum, or bistre by but slight toning, or quite red by merely fixing them in plain hypo.

Very laudable have been the efforts of one exhibitor to popularize kallitype printing, and after the display first made, on account of several deficiencies very severely but justly criticised, another was substituted, by which much more credit must be given to the process itself and the progressive maker of the pictures.

Printing on bromide paper has entered of late into a new field, that of toning them red by means of uranium. We are told by the advocates of the process these tones are sepia, but I must differ with them, the tone being far from that generally known by the name. When a bromide print is subjected but slightly to the action of the requisite solution, its color turns purple, combining the brownish red of the uranium deposit with the bluish-black of the silver, and when toning is continued for a long time the print turns red with a yellowish cast, and of more or less intensity. Uranium-toned prints of various shades of color are handsome, to my taste, but why amateurs favor a warm tone on bromides, when they object to it emphatically on albumen paper, is more than I am able to understand.

The orthodox albumen paper print gained an immense victory over all other methods in the amateur display referred to. Many, and especially the larger collections, were printed by the old method, and showed conclusively that albumen is still king in the domain of photographic printing.

Printing by any of the known methods has always been a great trouble to the amateur, much

more so than negative-making, the cause of which is simply a want of application and judgment, or perhaps patience in many instances. Information on the subject has always been given freely and abundantly by scores of reliable instructors, and, I may add, in conclusion, by no one better than by Professor W. Jerome Harrison, in his articles on "The Chemistry of Silver Printing," which have been running in these pages.



Chas. Duncan

HOW TO OBTAIN SOFT POSITIVE PROOFS FROM HARD NEGATIVES.

A SIMPLE and effective method of obtaining prints with improved gradations from over-dense or harsh negatives has always been a desideratum since the early days of photography. If in some cases the local or general reduction of the intensity by chemical processes answers well, most often the image is impaired by the solution of the layer of metallic silver forming the penumbra of the lights and the fine details in the shadows. Other means has, therefore, to be thought of.

In the old time of the waxed paper process our negatives were easily and effectively improved by working them up on the back with a stump and graphite to soften the shadows or to strengthen the lights; and the details were accentuated with the lead pencil, and the lights joined with gradation to the shades, whereby the picture was not only the work of the sun but also that of the artist photographer.

Indeed, we wonder how it is that the paper process is now entirely ignored. The principal objection to its use—we speak of the time of the Daguerreotypes, which were marvels of delicacy of details and of incomparable gradations—was the grain resulting from that of the texture of the paper, and also the little sensitiveness of the photo-preparation, but the latter was then inherent to the other processes.

We think that the first objection is but secondary for pictures of a certain size. The granulation, and it is fine, is no more objectionable in a photograph than in a lithograph, or the lines or dots in wood and other engravings. It is true that the picture does not appear quite sharp, in the distant plans specially, but that *flou* is precisely what, in our opinion, imparts artistic effects to the whole. In photographing upon glass plates the excessive sharpness in all the plans destroys the aerial prospective; our eyes do not see Nature with that profusion and minuteness of detail; in the distance all appear as masses. As to the sensitiveness of the photo-film it can be exalted by known means to any extent if necessary,

We beg to be excused for this long digression. It may, perhaps, not be without its utility; a word to the wise suffices.

To obtain soft prints from harsh negatives on glass plates the process of Mr. D. Duncan, published in 1870, under the title of "Chemical Retouching," is often recommended without giving credit to whom it is due, as usual. It consists after the negative is fixed, etc., to flow over it a solution of albumen, and when this is dry to coat it with a thin collodio-silver chloride emulsion; then to expose through the negative, etc.

It is obvious that the diapositive, exactly juxtaposited on the image, by covering or veiling the too transparent parts, strengthening the weak details and not or very little covering the blacks, the positive image is to a great extent softened and therefore improved; "freckles, scratches and pinholes are mollified, heavy blacks toned down and shadows softened, the faintest details in the shades are increased, preserved instead of being lost in printing."

Necessarily the diapositive, although weak, should nevertheless be so much the more intense, as the opacity in the whites and hardness of the negative picture is the greater. And it should be printed on the shade. And if over-printed it should be treated by a gold toning-bath which changes the not very actinic reddish color of the image after fixing into a blue-black, and much reduces the opacity.

This process answers quite well. However, it has been directed by modern authors to make the diapositive on the back of the plate. Is it an improvement?

The drawback, specially for negatives on gelatine films, is the fixing, and the after-washings, which are liable to spoil the clichés. To turn the difficulty it has been proposed to print the diapositive on a transparent celluloid film coated with gelatine silver bromide, such as found in commerce, and to apply it on the back of the negative while printing. We would prefer as a simpler and less troublesome process to make a proof on the same material prepared with a collodio-silver chloride emulsion in operating by the printing-out method. But, again, it is questionable whether these processes are real improvements; the exact superposition of the diapositive on the negative, which is imperative, is not very easily, and the printing should be made in such a manner that the light *always* falls at right angle on the plate in order to avoid doubling the image, which requires constant cares when printing on the sun.

On the whole we think that the process of Mr. Duncan is preferable, or the following, which we have lately devised:

It is to print a diapositive directly on the negative by the cyanotype or blue process. The color of the image is more favorable than any other one for the purpose, and the development, the fixing, and the reduction of intensity being all done by a simple washing, there is hardly any risk of spoiling the cliché.

We need not describe the manner of operating. Every reader of THE TIMES knows quite well the process referred to and its simplicity.*



P. C. Duchochois

*See the book, "Photographic Reproduction Processes," published by the Scovill & Adams Co., No. 38 of the Scovill Photographic Series.

A COOL RETREAT.

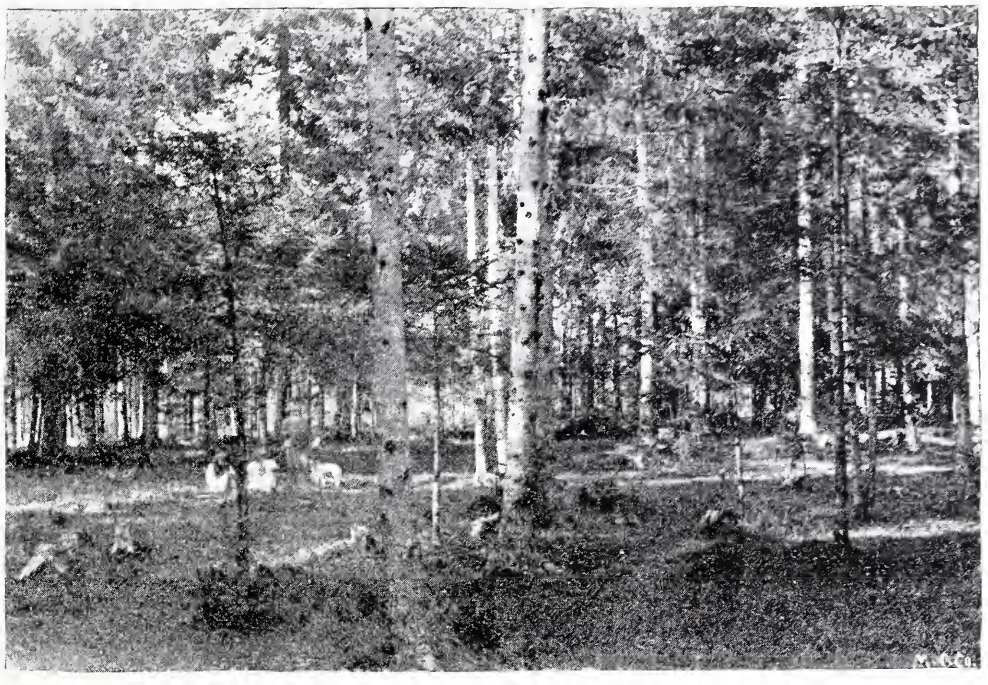
WE are sometimes hard driven in Italy to find a quiet corner of mountain land where we can escape the heat, the crowd and the newspapers, and where we can combine a measure of comfort in living with a moderate expense for moderate people. Italy is full of charming little out-of-the-way towns in the mountains, the Abbruzzi, Appenines, the lake country about Como, the Valtelline, Italian Tyrol, etc., etc., and even in the towns in the neighborhood of Rome, two hours away, there are one or two places where an artist might be happy and pass a summer of study or idling as he pleased, but where for the most part the commonest refinements of civilization are not to be found, neither a bed without fleas, a house that is not filthy, or a kitchen which would not upset the digestion of a man who must use his brains before he had been there a month. I have tried not a few of them, by the seaside on a fish diet, anchovies in the morning, soles at dinner and whiting at supper; in the Umbrian Appenines where veal was fried in the morning, roasted at noon and eaten cold at night; in the Pistoiese mountains where lean chickens surrendered lives they had no interest to preserve, and their elders and parents paid a scanty ransom for theirs in the daily egg which was our sole luxury; I have struggled with tough beef and tougher mutton, and fallen back on goats' and sheep's milk and the cheese made from it, with hasty pudding and corn bread, but for years I never found the place I desired to return to another summer on Italian soil. It is an immense puzzle to me that in a country where the beauty of the scenery is sometimes of the most remarkable that I know, and which has for centuries inspired the painters of the whole civilized world, there should be the curious indifference to profit by it that one finds in the most attractive localities of Italy. We struck a vein once in the Pistoiese Appenines where a deserted hotel stood lonely in a vast expanse of chestnut groves and a roaring, tumbling trout-brook promised some fun, quickly spoiled however by the swarms of village urchins and loafers who sifted the stream with trap and gin, net and fish-weir, till the trout who had a safe hole to hide in, hid at the bottom of it when he felt a foot-fall in the vicinity, and no fly that was ever made could coax him out. Still we had the wide sweep of the Appenines before us, sunsets and sunrises and the broad shade of the spreading chestnut trees to ramble in.

We praised the place too much, we and a family

of friends who shared the house with us, we excited competition, and spoiled our own luck—the house is now rented above our means—a recherché summer retreat, but not for us. I tried a charming village in the Abruzzi; lakes were in the neighborhood, lovely mountain forms in the back-ground and the most interesting antiquities around, with a deep, rapid river with abundance of trout, not for general fishing because the stream was preserved and let, and fished so thoroughly that it was useless to hope to find a trout that was not tired almost to death with the escape from capture. But the inn—the dirt of it, the disorder of it! I stayed a week, as I was ashamed to run away sooner, but I never went back again. We went to Cadore, the birthplace of Titian, where we had been many years before and had then found a rustic simplicity and a certain degree of comfort and quiet. Years had made it fashionable with a certain class of people who would spoil paradise if they got into it, and cameras were pointing down all the streets and round all the corners and the quiet was all gone. It was no longer possible to sketch undisturbed in a nook of the hills; the hotel prices were were all raised, and we decided to break out again and try another place. The Cadore country is a sort of bastion of the Alps on the south and gets all the sunshine of Italy with a temperature which makes the summer agreeable; it is at the highest limit of the growth of the chestnut and the vine, and the hills around are all clad with firs, the great industry of the province being lumbering, while the principal river of the region is a wild torrent which only serves for the lumberers to run their logs down. It rises in the Alps that form the boundary between Austria and Italy and runs through some of the wildest and most picturesque torrents to be found in the whole Alpine country. Every interval of arable land is occupied by a village and its surrounding fields, some of them picturesque enough to make them summer resorts but in none of them is to be found an inn which makes a stay there possible. In Switzerland every one would be ready for a score of guests.

By a curious and fortunate freak of nature, a sulphur spring rises in a gorge near the head waters of the river, and the consideration for its medical virtues had led an unusually enterprising local capitalist to establish a little bathing establishment with a modest inn capable of accommodating a dozen guests. It is in the midst of a wide range of forests of fir trees, solitary as a bit of the Adirondacs, between two torrents which unite just below to form the river, the Brenta, which carries the detritus of the Alpine glaciers and snow fields down to the sea where it forms the islands of the Venetian lagunes. On each side of the point of land thus enclosed, the mountains rise in a most rugged and picturesque succession of forms, in some parts sheer precipices of rock where no vegetation could cling, in others alternation of rolling meadows and forest of fir, and between them the level land of the peninsula thus formed, an almost unbroken dense forest where one might wander for miles in the green shade. The forest has not the majesty or the wildness of the Adirondacs, it is cleared of the fallen trees, and the cattle of the nearest village are sent there to graze, the trees are small as compared with the giant white-pines of our woods, but the prominade is delightful and the air is fragrant with the odors of the cyclamen, which grows here in such abundance as to tinge the turf with its purple tint. Here we fixed our quarters for the rest of our vacation, only regretting that we had not come earlier, and set pencil and camera in their places at once. The torrent which ran under our windows and filled the air with its murmur all day and night, gave some charming studies of running water which I tried to get in both photography and painting, but while the latter gave me delicious opalescent green of the snow-water and something of the movement of the waters over the huge boulders which beset their bed, the shutter of my rapid lens could not be driven fast enough to catch the dance and shoot of the white foam, the jets that shoot up into the air from the turmoil under the little water-falls like tiny rockets of snow, to fall back and be lost almost before the eye could catch them. The exposure was too long and the movement was lost, the negative being over-exposed, which made the failure more exasperating. On my return I sent the tube of my lens to Bausch & Lomb for one of their shutters, of which I hear wonderful reports and another summer I hope to try speed against running water again. I once succeeded in getting with a shutter of my own construction, a negative of a plunge of a mountain torrent in which the spurt of spray was rendered as if it had been stationary, but the shutter had serious faults for general use and required great mechanical modifications and improvements, which I have never been able to find time for, and so it lies in my drawer amongst the fragments of apparatus of various kinds which have gone the way of good intentions.

I recognize the bad policy of telling the public of this delightful nook of a mountain land, because it may spoil it for ourselves; when, if ever, it becomes resorted to by all the world in search of quiet (which is what some folks most detest, however), we shall be crowded out and be obliged to





W. J. Stillman, Photo.

The Mound City Engraving Co., Engrs.,
St. Louis, Mo.

"A COOL RETREAT."

find some other corner where we can live in peace and economy; but, never mind, the proprietor deserves prosperity, and if any wandering American in want of a cool retreat in this part of Europe should go to the baths of Gogna in the district of Cadore, he will thank me for telling him of it. I send you a couple of negatives to prove my words as to its picturesqueness.





SUBJECT AND TITLE.

IF imitation be the sincerest form of flattery, then photographers must be the sincerest body of flatterers ever known. To establish this theorem one only need visit any annual exhibition for two or three years in succession, in order to be convinced of the very small stock of common property in the department of ideas. Now and again one bold fellow will venture out a trifle beyond the average line; he gains a little notice, and next year is swamped by more or less feeble imitations of his venture.

A little thought will show how utterly absurd any imitation must of necessity be in all such matters; for the imitator at best can only resemble the manner, and very often only feebly reflects the peculiarity of the originator, while at the same time it does not—nay, cannot possibly—participate to any real extent in the originality of thought. This however, is, by the way, at present, and may be fitly reserved for closer consideration at some future time.

Our first business now is to track some cause of this manifest "plentiful lack" of ideas among the great majority of would-be picture-makers of all sorts, but more especially among the photographic fraternity.

Repetition and imitation are all too common among painters, but they must yield the palm to the camera-man. One great cause must of necessity be the general absence of originality. This in great part is fostered by the "fatal facility" with which photographs can be manufactured. The (very) average camera-man goes out for a day's "viewing around," with little or no settled purpose in his mind. He just trusts to luck that "something" will turn up. Half-a-dozen "somethings" do turn up; and as many plates are exposed, with the very necessary consequence that they are wonderfully like a similar half dozen of the previous week. The painter does not average half a dozen sketches in a day. About one-sixth of that number would be nearer the mark, and with the very probable result that this *one* contains quite six times the collective merit of the six photographs. It is to a great extent a compensation of quality *vs.* quantity. At the end of the year the painter has perhaps selected three or four or even half a dozen sketches for elaboration and further development, each one of which receives perhaps a month's more or less continuous thought, care, and attention. The photographer probably has produced a couple of hundred very mediocre representations of very commonplace subjects.

Now, although some noteworthy authorities strongly declaim against setting out picture making with any preconceived notions, yet I venture to think that in very many cases a few preconceived notions or ideas, even if carried out but imperfectly, would be preferable to the great bulk of photographs produced with no ideas at all.

It will be found that the great majority of painters who have made for themselves a name by reason of the originality, etc., in their works, have been great readers and thinkers. It is no uncommon thing to meet with, in their biographies, some mention of their having had an idea for a picture germinating in the mind for years before the actual work was executed. Their sketch-books and memoranda abound with observations and jottings which may not be used for years after they were recorded.

On the other hand, the average photographer is often a busy man. What spare reading time he has is entirely devoted to getting up some new processes, or trying new developers. The great mine of imaginative thought, the poets, is of next to no interest to him. This I think is a fundamental error on his part. And that his stock of ideas is painfully narrow is a fact which is told one by the way in which he copies his ideal worker not only in subject but in title. Take at random the catalogue of any photographic exhibition and note how often we meet with a "Study," "Sunset," "Fishing Boats," "The Hay-field."

Again, where here and there one ventures out of the old ruck of threadbare titles and appends a line or couplet from the poets—not seldom does it appear that this is an afterthought rather than an attempt to portray the sentiment of the passage.

To one who has never regarded the poets as a storehouse of mind pictures, such an idea may come as something of a notion far-fetched and impracticable. To meet this doubt I will close this note with a few sparks caught—almost at random—from the anvil of one of the princes among picture poets, viz: Longfellow. Let me, however, make it quite clear that these sparks of thought are not to be taken as a substitute for individual thought on the part of the worker, but rather as sparks just enough to set aflame some past memory or voice—the half-formed picture suggested by some scene. Any one who puts down a dozen or a hundred of these word-sketches, and without more ado sets off to try and find "something" that may be made to "fit" one of these titles, is not only predestinating himself to a state of mental atrophy, but is also inviting a shower of ridicule.

But on the other hand if he keeps a note-book and jots down any such passages, be they verse or prose, which suggest to him any recollection of his own, and will let these passages dwell on his mind for a time, like the seed in ground silently germinating, and always striving to bring himself into mental harmony with the writer, and to see with his eyes; then sooner or later he will find that these ideas and suggestions are putting forth *new* shoots and twigs in his own mind. Let us now take the opening lines of Longfellow's "Sunrise on the Hills:"

> "I stood upon the hills, when heaven's wide arch
> Was glorious with the sun's returning march,
> And woods are brightened, and soft gales
> Went forth to kiss the sun-clad vales.

Here we have a mental picture of the sun being welcomed by the soft gales, a subject quite out of the range of the photographer's art. But read on a few lines further when the mental picture is replaced by the conception of the sun marching forward as a conquerer scattering the great mass of clouds "like hosts in battle overthrown."

Then presently comes the inner sentiment of the sunrise, showing the connection of heavenly and earthly things.

> "The veil of cloud was lifted and below
> Glowed the rich valley, and the river's flow
> Was darkened by the forest's shade
> Or glistened on the white cascade."

Each of these lines contains a more or less seperate element of the harmonious whole. Take any of these thoughts as a starting point, and bring it to bear upon your own personal recollection of some such scene, and also compare the sentiment expressed with your own keen observations of nature. Separate what is characteristic and expressive from what is accidental and common place. Follow out for yourself those parts or phases which contribute most strongly to your own mental picture. These are the features which you see, and feel to be your own picture. These are the elements you must strive by your work to present to others with the *same relative force* that they present themselves to you. This result is your own, and whatever defects it may have you know that at any rate it is not an ass in a lion's skin. You can, if you please, say with Touchstone, "it is an ill-favored thing, sir, but *mine own.*"

By storing the mind with the word pictures of the most sympathetic observers of nature, the poets, we gather side-lights which when brought together add further interest, and insight, and suggestions. Supposing our thoughts are now turned to the dying day, we have these lines:

> "The swelling upland, where the sidelong sun
> Aslant the wooded slope at evening goes.
> —*Spirit of Poetry.*

From this mental image we may pass to that suggested by the lines,

> "The mist-like banners clasped the air,
> As clouds with clouds embrace.
> —*Beleaguered City.*

Or perhaps our thoughts linger round some sylvan scene,

> "When the long drooping bows between
> Shadows dark and sunlight sheen
> Alternate come and go. (1)

Or perhaps,

> "The dark foliage interweaves
> In one unbroken roof of leaves,
> Underneath whose sloping eaves
> The shadows hardly move. (2)

But perhaps the sun may peep out, and the scene shifts to one where

> "Athwart the swinging branches cast
> Soft rays of sunshine pour. (3)
> —(1) (2) (3) *Prelude.*

Or where

> "The shadow of the linden tree
> Lay moving on the grass.—*Gleam of Sunshine.*

Or yet again our thoughts may be turned to some favorite stream

> "That in silence windest
> Through the meadows, bright and free,
> Till at length they rest there fondest
> In the bosom of the sea.—*River Charles.*

Or perhaps to the sea itself with its unanswerable question,

"Whether thou, turbid wave?
Whither with so much haste
As if a thief thou wert?—*The Wave.*

Or perhaps to the boats,

"Full and swollen in every sail.—*Bird and Boat.*

Or the

Stately ships,
That with their floating bridge the ocean span.
—*Lighthouse.*

And so on, and so on, as scene after scene grows from the pages of this word-painter, whose memory will always be grateful to me if for no other, at least for this reason, viz: that he was the first poet to show me in my boyhood days, what he has best expressed to be a part of the office of

"The poet, faithful and far-seeing
Sees, alike in stars and flowers, a part
Of the self-same universal being,
Which is throbing in his brain and heart.
—*Flowers.*

And exemplified the truth of his own lines.

"Lines of great men all remind us,
We can make our lives sublime,
And departing, leave behind us
Footprints on the sands of time;

and although he added,

"Art is long and time is fleeting.—*Psalm of Life.*

Yet how truly one feels this to be his own unconsciously penned epitaph,

"Dead he is not, but departed, for the artist never dies."

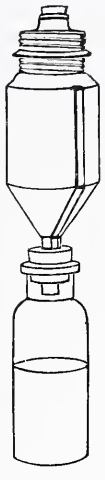


F. C. Lambert

A COMBINED COLLODION FILTER AND FUNNEL.

THE handy little contrivance which I here describe I have had in use in my gallery for nearly a year. It has been so very useful to me that I desire to describe it for the benefit of others. It is especially useful in filtering plain collodion for varnishing negatives before using Omega, Aristo or other similar papers, or for enamelling.

The small air tube permitting the air to escape from the bottle above the collodion, as shown in the cut, is the distinguishing feature of the invention. The can screw-top permits the cotton to be placed or replaced in the neck of the funnel with perfect ease. The cork is designed for a wide-mouthed bottle.



As will be seen in the cut, my combined filter and funnel consists mainly of a capacious can to hold the solution to be filtered, a top with a stopper movable by a screw, and a tube through which the solution passes into the receiver.

After the liquid to be filtered has been placed in a receptacle, the neck of the tube having been previously filled with absorbant cotton and the aperture through which the collodion is fed is closed with a tightly fitting stopper, and the tube through which the solution is to pass into the receiver is also fitted with a cork and thus a perfectly tight combination is effected.



J. P. Swain

LINES ON THE PHOTOGRAPH OF A YOUNG LADY.

HOW could one dare to photograph her face
And think to get a *likeness* thus of her!
Where is the shadowy change and smiling stir—
Fleeting, though real—that marks her spirit's grace?
An accurate dead resemblance could one trace,
Were this not so retouched, yet how aver
That at the best one could more than infer
That, art being able, great beauty would here find place.
How, when the silent, cloud-hung evening air
Is shot with gold-red by the setting sun,
Would a photographer, too daring, fare
Who tried to fix the glory ere 'twas done?
Emotions' play, as colors, charm the mind,
Yet neither in a photograph we find.

Dallett Fuguet.



A Christmas Card.

THE bold idea was mine. Mother likes Christmas cards, but thinks photography dirty, expensive and poisonous—why not win her by a photographic Christmas card? Elise has a plenty of art books, and we planned an adaptation of Correggio's "Holy Night," to be mounted on a gilt-edged card with some music written below, but alas, we never got as far as mounting, for reasons to be related. I wanted Paul Veronese's "Adoration of the Kings," but the great number of the figures in Oriental dress bothered us. We have absolutely no stage properties at all, save two yards of old gold velvet which was once a front breadth of my dinner dress and some black lace; then we thought of the "Adoration of the Shepherds," by Murillo, which is lovely, but, there it was again, we had no sheep. And besides the Child is so prominent I feared we could not do it reverently enough, so we settled on Correggio's "Holy Night," as our only feasible design. On one side of our barn there is a post, and around this, omitting, of course, of necessity, the floating choir of angels, I posed the figures. It was to be an interior and done with a flash.

On a box in some hay and straw lies the Child, so small that Blanche's biggest wax doll served us—and if this was blasphemous the Italians who carry around a "bambino" dressed in swaddling clothes are just as bad—over Him bends the Virgin, who was Elise, because she has never "banged" her hair, while on the left, for the three figures which are a man and two girls, I put our neighbor Bobby, bare-legged, with a beard made of horse-hair and a staff in his hand, with his two cousins, who were spending the holidays in the country. They are Presbyterians and thought it was wicked till I explained that these pictures by the Old Masters were not inspired like the Bible, and if it was wrong to make them it was wrong to look at them, and I knew their father had brought lots home from Europe. I was Joseph, with a made-up beard like Bob's, and my skirts did not show because I stood behind our old horse in the background almost out of sight. The art books say "the ass stubbornly resists the efforts to be pulled away to show the fulfillment of prophecy 'the ass knoweth his master's crib,'" and I hoped to keep Charley still by seeming to pull him away. If I looked funny, it was not my fault, as I never felt more solemn and anxious in my whole life. Blanche is never very reliable, and she was to touch off the magnesium cartridge, after I had posed every one and focused and drawn the slide, and hurried into my own place behind the ass—*i. e.* Charley.



"I wish I had a real baby," said Elise, as she cast her blue eyes down on the stupid, insensate doll.

"It would be like making a graven image," reproved one of the cousins.

"It seems to me this doll is more like a graven image," retorted Elise.

"Kindly leave theological discussions to moments when I am not taking a *genre* picture," I begged, replacing Bobby in the pose I had put him in a minute before; "and now, Blanche," I added, as I hurried back to Charley, who was busy eating up all the straw in the improvised manger, "be quick, and be careful to shade your eyes, and don't throw the match on the hay-mow."

Whizz—ziz—ziz—a blaze, a great glare, a suffocating smell, and it was done.

Five minutes later we were all crowded together in our dark-room—which holds one uncomfortably—with only Blanche, by common consent, ruled

out on account of her known tendencies to want to open the door, to step into the waste-water pail, to upset the bottles, and get so thirsty as to threaten to drink anything out of the glass graduates, regardless of cost or poison.

"It is coming too fast," I said, fearing lack of density and reaching out for the bromide bottle.

"Be careful," cried Bobby, who knows it all, although he has never taken a view in his life, "your old *eiky cum pyro* just plays the mischief with these flashes."

"Give us more light," said Elise, who would like to develop in broad sunshine.

"No, these Eclipse plates fog if you look at them—." I stopped because Blanche at the shut door was screaming on her highest key.

"I say, I say, I say—I will tell mamma, and she will not be surprised a bit at Christmas. You have left my dear Ellie Graham to burn up in the barn, and you said it would not hurt her to be *tooken*, and now she is dead, and it was her birthday, too, on Christmas Eve. You are all bad, and I will tell mamma. My dear dolly is burning up, and you won't leave your horrid picture, to come and see."

Nobody waited a second invitation, nor stood on the order of his going, but just as we were, in our aprons over our semi-oriental costumes, we hurried forth to find the barn in flames. We were the last on the scene, for although we are too far from town to get help from the fire companies, all our good neighbors had turned out to vainly try to save poor Charley. Alas and alas, everything a farmer values was lost in the flames and no insurance money could be collected, on account of our own carelessness. Father scolded, mother mourned, and we all wept over dear Charley's charred bones, which were dug out the next day, and Blanche could not be consoled with the promise of a new doll. The personality of the deceased Ellie Graham was not recognizable when melted, but her memory still lives—wakes and cries. I, only, of all the family remembered to look at the half-developed plate in the tray, and I found it the next day ready for the hypo and by no means a dead failure. However, as yet, I have made no prints from the negative, but stowed it away in an envelope marked "Christmas Card, after Correggio, a low success on account of a sad combination of flash and hay-seed."



Adelaide Skeel

THE USE AND ABUSE OF PHOTOGRAPHIC LENSES.

IT is forcibly borne in upon me that a large proportion of those who undertake camera work have little if any conception of a lens beyond the fact that it will take a picture. The idea of its being in itself an exceedingly interesting and important study does not seem to occur to them, and all that is involved in the study of optics is as a sealed book. To be sure, the photographically-inclined public is invited to a bountiful feast of books and magazine articles on this and kindred subjects, but the questions are treated so very scientifically as to be almost unintelligible to the average reader. It would require a volume, and a bulky one at that, to properly treat this special matter, and I can only emphasize a few points already written upon over and over again, but much depends on how such subjects are presented, and people, nowadays, in the rush and hurry of modern life want everything in the line of mental information given in clear, compact form, free from technical subtleties, so that, as Sam Weller said, they may have "little to do and plenty to get." They are apt to forget that some one else must dig the furrows, plant the seed and bring to perfection the harvest of which, without sowing or reaping, they can enjoy the benefits. To such let me say, they deprive themselves of more than they would believe possible in allowing other brains the advantage of a training which should be their own high privilege and to which there is no royal road.

The press-the-button camerists are largely to blame for this, as, it not being easy to remove the lens from their cameras, they are not apt to consider it as specially important, and then, it is so very simple to depend on a "universal focus" and not weary one's own brain and take time in drawing a focus carefully. There are misers who save their brains as other people save their money. They may, perhaps, realize that with a wide-angle lens more can be gotten into a picture than with an ordinary view one, but all wide-angle lenses are alike in their estimation, and they are not able to understand that using such is often only a questionable advantage. Neither is it understood, generally, that a lens should never be strained beyond its natural limits. If pecuniary considerations oblige the purchase of a small lens, then the camerist should be satisfied to do small work and do it well rather than attempt large pictures and do them poorly. A skilled eye can readily detect when the lens is too small for the plate, and I

strongly advocate using, whenever possible, a lens which can cover the next size larger plate, not by stopping down but with full aperture. I would deprecate with the deepest earnestness the indiscriminate use of small diaphragms. They are used altogether too often as an ineffectual means of securing sharp definition without the trouble of careful focusing, for the average human being is what might be called lazy, and sees no reason why work and pleasure should be considered as synonymous terms. If it was once clearly and generally understood, what an immense advantage would be gained by even a brief study of optics, and their relation to the making of a lens, with some idea of natural physics and the theory of light and that such knowledge would enable one to, in the end, really save time, trouble and expense, I believe it would revolutionize camera work. How many amateurs know wherein lies the difference, or, indeed, that there is any, between the ordinary view lens and a portrait one? Does the tourist with countless rolls of films always know why he cannot use a shutter at its highest rate of speed on every lens or why a wide angle one works more slowly than a rapid rectilinear? I had a letter from an earnest camerist lately asking advice about a lens and he wished it to, literally, do everything. It was necessary to assure him very positively that no such lens had, as yet, been made. Experience has shown me that not only do lenses differ in respect to kinds of work but as regards their manufacture, and even as regards those of the same kind by one maker. This is inevitable so long as they are produced mainly by hand-work, the individuality of the workman is always shown in his work, and it is imposing on the credulity or ignorance of the amateur to assure him that lenses of any maker, however expensive, are alike good. Every lens should be tested before being purchased, and yet I cannot blame dealers for hesitating to trust valuable lenses in incompetent hands for that purpose. Beginners should be cautioned as to the care of lenses, and that the fingers must never touch the glass. I recommend putting a cap on both ends of the lens when not in use as a protection, and that they be kept in chamois bags. Keep them from extremes of temperature and clean them preferably, with only the softest linen, although silk is also said to be good. Whenever possible remove the lens from the camera after using and put it away. Watch over its welfare and it will reward you with good work, but not otherwise. It would be well to have some such arrangement for testing lenses as exists at Kew, in England, where this is done by disinterested judges who are thoroughly capable. Failing that, it would be a good plan to have some professional friend do it if one cannot personally attend to it.

The best all-round lens is a rapid rectilinear, as it can be used for a greater variety of work than any other, and its name indicates its nature, but it has its drawbacks. Even with a sliding-front and swing-back to the camera the angle included in the picture is often undesirably small, and it is very often impossible to get sufficient distance for a satisfactory picture considered as a composition. Without going too deeply into technicalities I will only touch on a few of the practical uses of a lens. All kinds require study and experience to show their full possibilities, but I do not believe in depending on view-finders, focussing-glasses or similar helps, preferring training the eye to judge for itself. Depth of focus or making everything appear equally sharp, is by no means always or indeed, ever, desirable, for it is not only untrue but positively inartistic. Between that and what is called diffusion of focus lies the golden mean. Diffusion of focus is nothing more nor less than intentional spherical aberration. Single view lenses have the advantage of being cheap and of producing a clear, crisp image, but they do distort, have an extremely moderate angle, and are slow. They ought not to be used for anything but landscapes. In "correcting" a lens, as it is called, it may not be generally known that such is really a system of compromises, and that in overcoming one fault another must often be suffered to exist, at least in part. Straight lines are essential in architectural views, and rapidity is required for portraits, moving objects and winter scenes or marines. Interiors need the clearest, sharpest detail, and, in such work, usually, time is no object. With portrait lenses, rapidity and flatness of field is gained at the price of more or less astigmatism which, in genre studies and groups, is a fatal defect. Some of the recent wide-angle group lenses, made for short studios, and having no appreciable astigmatism, are invaluable, but where it is possible to use a rapid rectilinear the latter are to be preferred. They are now made to use at a much shorter distance than formerly, are quick-acting and, in fact, almost render a portrait lens useless except for dull days and by side-light. For ordinary out-door work, a lens should have a focal length nearly or quite equal to the diagonal of the plate used and more than that for a portrait one.

The marginal distortion of a wide-angle lens or rather, its false rendering of perspective, is more plainly seen in architectural work than any other,

but with care this can be largely overcome. Where an interior is taken do not let a chair, for instance, stand with its outer side nearer the camera than the inner one, nor too near the edge of the plate, but counteract the disproportion between the two sides by turning the outer side a trifle away from the camera. It is better to do that than blame the lens. In placing the furniture consider that objects near the camera will appear much larger than those at a distance, and if you wish to include large pieces in the picture a wide-angle lens is indispensable.

I am continually being asked about the various parts of a camera, development, etc., and have come to the conclusion that, in an article intended to assist other workers, a few points plainly stated are better than elaborate disquisitions which no one but a scientist can understand, so that I aim only to explain difficulties from which I have personally suffered. It is to be hoped that those just mentioned may lead some camerist to pursue the subject further. He will find his work improve, and in his researches will learn to constantly increase his respect for the camera and camera work.



Catharine Weed Barnes.

Photographers apparently are a grateful class of professional men. Dr. R. L. Maddox, who twenty-one years ago invented the gelatine dry-plate, has recently been in straightened circumstances owing to the breach of trust on the part of a Trustee. In England, without solicitation, quite a large sum of money has been sent him. One firm gave $500, and both professionals and amateurs have added liberally to that amount. It is now proposed to make acknowledgment of his services in a more effective manner. The Photographic Times, in this city, will receive any subscriptions to whatever testimonial shall be decided upon. Dr. Clifford Mercer, of Syracuse, is a member of the English Committee having the matter in charge.—*New York Times.*

NEEDS OF PHOTOGRAPHIC CLUBS.

AMATEUR photographic societies are the natural outcome of the dry-plate era. They form the school of disseminating knowledge among struggling amateurs, who would otherwise be "all at sea" for want of a little instruction. At the same time they keep the interest of members alive by suggesting new problems for solution, engendering a praiseworthy spirit of rivalry among the more expert. As a rule, however, the society of to-day is not the ideal of the earlier period of photography. The tendency of the times toward the criticism of the work of others, is leading to a neglect of work on the part of the critics. This is done, doubtless, to the feeling that "those who live in glass houses," etc. This is wrong in principle and if not checked is liable work injury rather than advance the standard of society work. Notice in your own society how few members bring in work to be criticized, and generally how freely such work is handled by those who seldom or never exhibit any of their own productions. This, naturally has a tendency to check the enthusiasm of those who offer work, and leaves the society without examples from which the members may make comparisons with their own efforts. The comparison of actual work is valuable, and tends much more than lectures to cultivate an artistic eye in photography. The mere mechanical part of the work can be learned very readily, and is, unfortunately, given prominence by most amateurs, while that which attracts the true artist is neglected. Of late years there has been a tendency to sacrifice the lectures, the reading of papers by members, and discussions on photographic subjects to the exhibition without comment of criticism of the lantern-slide work of sister societies. These exhibitions should become secondary to the more beneficial and instructive lectures and papers. The slide exhibitions are delightful and should be continued, not as the prime object of the society's meetings, but more as a recreation. The slides, too, should be criticized by a member selected for the evening, who should study the subject in advance, and thus be able to talk instructively and intelligently by adding to the interest in the work. Papers by members and lectures by chemists and local photographers of prominence should be an especial feature of meetings, and the members should be invited to bring samples of work to be criticized by the lecturer. The faults thus pointed out can be discussed by those present to general advantage. Cultivate a generous, kindly feeling among the members, discouraging petty ill-feeling and jealousy. Encourage the younger members to

relate their failures, supply the remedy, and the society will prosper and become a school in which both photographers and artists will be benefited and interested.

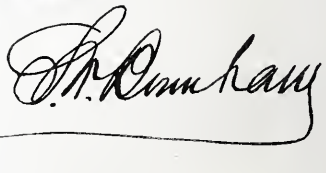
Robert E. M. Bain.

ABOUT MOUNT HAMILTON WITH THE CAMERA.

THE canons about Mount Hamilton offer numberless attractions for the searchers after the picturesque. These canons form the beds of small streams, called creeks here, of clear, cold water, running through wild, rocky gorges on their way to the bay of San Francisco. On the one side of Mount Hamilton is Sulphur Creek, and on the other side the Santa Isabel Creek, both flowing into Smith Creek at different points. The latter stream a little lower down is known as the Arroya Houda and finally reaches salt water as the Calaveras Creek. The tributaries near Mount Hamilton are not less than fifteen hundred feet below the summit. As the descent is very steep all the way, the actual distance is short, and unfortunately very much too short for the return trip, for some of the way both hands and feet are necessary in climbing up the precipitous places. A light camera will be heavy enough before the summit is reached on the return trip. I have generally preferred to follow down the stream, and get back on the road and trail by traveling six or eight times the distance down, rather than take the short cut. Once down there the difficulty is to decide how to use to the best advantage a limited number of plates in connection with an unlimited number of varied subjects. One must pass many charming subjects after enjoying the pleasure of studying them on the ground glass, or the plates will be speedily used up. When there are miles of good things ahead, which have to be traveled over whether the camera can be used or not. In the Spring these streams are a paradise for the enthusiastic trout fisherman. On one occasion I endeavoured to combine fishing with photographing, but after awhile I gave my attention to getting instantaneous pictures of the other lone fisherman who was oblivious to anything but the fish-pole, and therefore could not spoil the picture by unnatural posing. In many places the stream has worn its way through the rocks, making a deep narrow channel which is very difficult to follow. At places it is necessary to climb far above the creek, and hang on with both hands at that, in order to get through one of these narrow passes. A good many of these subjects require a lens of the widest angle, and not unfrequently the situation is too confined for even such an instrument. In other places the canon widens out so there is no difficulty in getting along, although it is anything but smooth walking at the best. Large trees of various kinds are found along the creeks wherever it is possible for trees to grow, while ferns, vines and all sorts of plants and shrubs, known only to the botanist are green all the year round. When one loses anything on a trip of this kind, it is best to charge it at once to profit and loss, and think no more about it. I have a select assortment of dark cloths, finders, plate-holders, etc., deposited at various unknown points in these canons for the benefit of posterity.

The pictures reproduced here were made on some of these various excursions, and represent rather the quiet and peaceful aspect of the scenery in these canons. There is an advantage in using a fast plate, not only on account of the water which forms an important part of every picture, but to get the foliage sharp. Nearly always there is a current of air passing by, due to the great difference in temperature between the canons and the heights above, and therefore a short exposure must be given whenever it is possible to do it, and get a fairly timed negative.

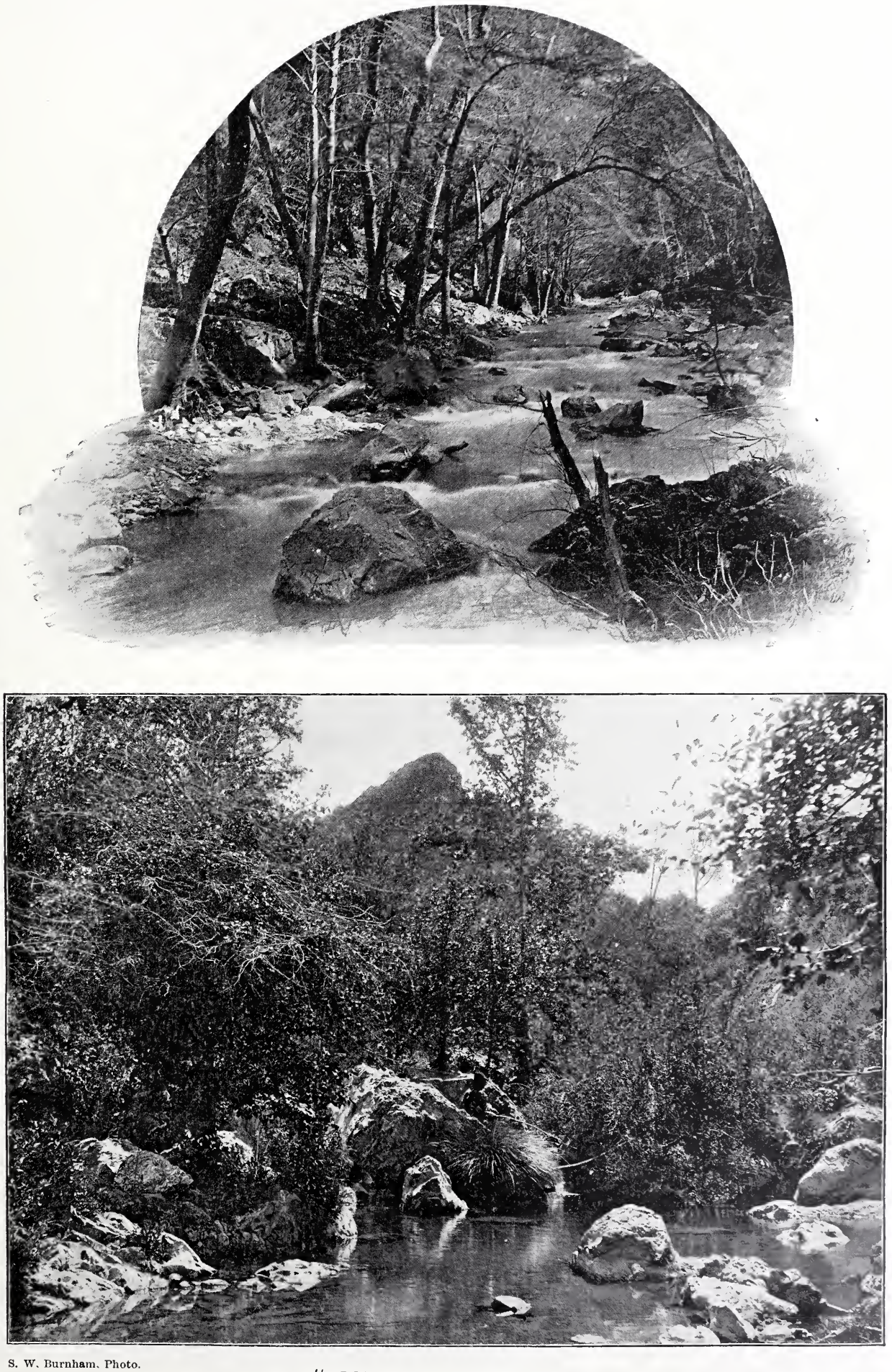




ENTITLING NEGATIVES.

IN "The American Annual of Photography," for 1891, are some valuable suggestions for marking titles, etc., on negatives, and elsewhere others have appeared. I do not remember to have seen a simple plan which I find to serve very well.

Write or print with black ink (India ink is best for writing) on transparent or translucent paper, or cloth, and cut out a lable of suitable size containing the writing. Place it on the negative face down, where it is to appear before printing. It may be fastened in place with gum or varnish, or



S. W. Burnham, Photo.

"ABOUT MOUNT HAMILTON."

laid loose, being careful to have it in the right place.

The paper used by draughtsmen, called onion skin, answers very well. The paper being not entirely transparent makes some imprint itself. If this is thought objectionable it may be oiled. Oil of sesame is said to be the best for this purpose. Varnish or Canada balsam may do as well.

The writing being placed face down will appear properly in the print, and this plan avoids the trouble of writing backwards, or using guides and other difficult ways.

J. A. Anderson.

THE RISE AND FALL OF THE DAGUERREOTYPE.

(As seen by a Country "Operator.")

VIII.

In the fall of 1848 there were few cameras in use in western New York between the longitude of Rochester and the shore of Lake Erie. Cameras there were, enough of them, but they were mostly set aside where they were out of the way, and their retirement into privacy was acquiesced in by the public not unwillingly. They were out of fashion. Occasionally a picture had strayed hither from the eastern cities which had elicited unfavorable comparisons, and as a consequence of these and of causes closely related thereto the occupation of the country operator hereabouts was gone. It is probably true that up to this time none of the genuine lenses made on the Petzval plan had reached the territory included within the above limits, and, unless my information was at fault, their great superiority over their American imitations was denied by the dealers and principal daguerreotypists of both Rochester and Buffalo. But the forays of pupils from these "art centers" were not always highly encouraging to those who made them. They had chiefly been episodes of failure—short histories of money misspent and time wasted—followed all the same by the chagrin of bitter disappointment.

I hoped to find some place to settle in permanently, but hadn't the courage to make the attempt in either of these cities, as yet; and therefore, in order to be better prepared for such an undertaking, both in experience and funds (especially the latter), thought it advisable to continue my wanderings until some future date. With this plan in view I located temporarily at the pleasant village of Springville, Erie County, where we—my wife and I—remained until the following summer. Taking a couple of rooms over a store, one of them, which had a window facing the north, was made to answer the purpose of a reception room, while the window was used to light the sitters; the other room served for a workshop. An old-fashioned box stove, of a kind now unknown, with a voracious appetite for dry wood, heated both apartments in the coldest weather. With these notable facilities, a pretty thorough acquaintasce with one of the best processes known, and my little Voigtlander lens, I was able to attract some attention to the products of my labor, and so had, on the whole, what I was willing to call "a real good time" through the winter. We made many pleasant acquaintances among the genial and friendly people whom we have never forgotten, of whom, how many, alas, are not now among the living.

But the interest which the people of the village took in the pictures did not spread much outside its limits, and the demands of those who did admire them were pretty soon satisfied, when the business lapsed into such a state of quietude that it began to look as if my patrons had voted me a peremptory vacation, and the vote had been unanimous. Occasionally a new customer would straggle in, but evidently the paying business was over, and so the proper thing to do was to accept the situation since it was unavoidable.

Without changing my residence as a citizen, I took my camera and its belongings over to Ellicottville, the county seat of the adjoining county, to see if something could not be done with them among the hills and vales of Cattaraugus. But picturesque as was the scenery which environed them, the people had little use for such pictures as I had to offer.

There were very few daguerreotypes in the village, and these as well as others which I would have been happy to furnish were probably looked upon merely as samples of a curious art, and consequently my sitters were anything but numerous. I hope the few pictures which I left there did not make the task of further introducing the like, more difficult. After six or eight weeks of poor success I concluded it best to leave before being *stranded.*

Then we went into Chautauqua County, and in the low state of my funds I chose for a stopping-place the little village of Forestville, where expenses were moderate in keeping with the moderation of my expectations. From my point of view the near future was not dazzlingly radiant. But I had no thought of losing courage; had faith in the good time coming, although there seemed to be no immediate danger of a shock from its too rapid approach.

Here it happened that the camera met with a

more cordial reception than at the former place, and prospects began to brighten a little. At this time there was an operator at Fredonia, a few miles distant, by the name of Kellogg, who came out with a dashing advertisement in the local paper, headed with "DAGUERREOTYPES BY THE LONDON PROCESS."

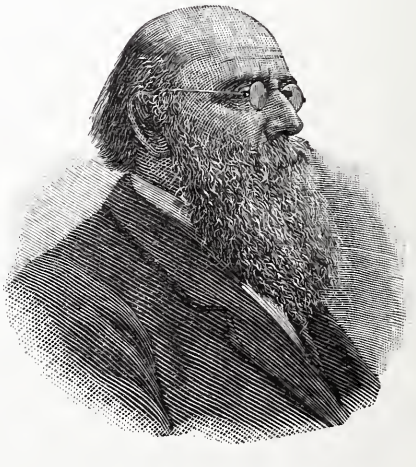
As this paper was read in Forestville, and no paper being published in the latter village, this thing looked very like a *glove*, and I picked it up. Decidedly it would not do for my customers or "might-be" customers to imagine they had been or might be defrauded by accepting the products of an inferior process, when by just driving a few miles on a pleasant road they could have the genuine article with the London style thrown in; and so, next week, there appeared in the same paper another advertisement beginning with "DAGUERREOTYPES BY THE AMERICAN PROCESS," which, I need not say, was intended as a counter irritant to the hit made by my shrewd and redoubtable rival. Sometime afterwards I went over to see him and found him holding forth in the front parlor, on the ground floor of the principal hotel, making his sittings at the large front window looking right upon the street. Half a dozen steps from the sidewalk and one was in his studio, where he welcomed his customers with affability and served them with dispatch. The back part of his studio was curtained off, whether only for a dark-room or whether he had an assissant there I did not learn. There he was with a quarter size ($3\frac{1}{4} \times 4\frac{1}{4}$) outfit, including a Voightlander lens, which he appeared to handle very skillfully, and with which he was probably making money. His manner of bringing himself into close relations with the general public was greatly in advance of anything I had ever witnessed, but I felt no inclination to imitate the example. It was his way and he seemed to be flourishing in it. I preferred to be up one flight of stairs.

Those first quarter lenses of the Petzval pattern were famous for their wonderful sharpness of definition, and any daguerreotyptist who was fortunate enough to possess one had good reason for prizing it. The superiority of its performance over that of anything that had preceded it was remarkable, and sitters were greatly pleased with the improvement. Now, that a single achromatic lens costing about as much as a pair of spectacles may be stopped down to a small fraction of its diameter, and be made to give a sharply defined image over a considerable field, with a snap-shot or a second's exposure, it is curious to rembember the important figure cut by those little objectives which so successfully solved the problem of combining great illumination with perfection of definition over the surface of a quarter plate. In fact they were the making of many of the old daguerreotypists. I do not believe Kellogg could have paid his expenses in his elegant quarters (elegant for that time) with any of the ordinary lenses then in use. The samples of his skill which he delivered to his customers, so superior to what they were accustomed to see, gave a new impetus to the art in that place which never again died out.

This was the fall of '49, the beginning of the second decade of photography. The ten years that had passed since the daguerreotype was first made known to the world had not been very fruitful to the country operator. My old friend, if now living, as I hope he is, will, I think, agree with me that up to this time, a village of two, three or four thousand inhabitants, would, on an average, afford paying business for only about the same number of months, when it would be time to move; and that between moving and halting, the end of the year found our migratory bird in about the same condition as in the beginning. He was fortunate if he found a surplus to his credit, however small, which he did not know what to do with.

But his work had not been in vain. Along the by-ways where he had passed he had sown seed which had not fallen where "the fowls came and devoured it up." Many a little silvered copper plate bearing the image which his art had impressed upon it could not now be bought with thrice its weight in gold. The desire for them was fast spreading among all classes; and the time was near when it would be almost universal.

(*To be continued.*)



W. H. Shuman

HOW I DEVELOP.

THE title of this article must not be looked upon as egotistic; the editor desires to have a practical paper for his holiday number, and, as nothing could well be more practical than a description of the mode of working of an individual photographer, it is hoped that the following details will only be taken as a response to the editor's expressed wishes. Probably every operator thinks his own method superior to every other; personally, I believe that a considerable number fail to obtain full value from a plate owing, firstly, to a laxity in the use of their chemicals, and secondly, a want of knowledge of the utmost extent to which the capabilities of their plates may be strained without injury to the quality of the resulting image. Let us take the chemicals first. Pyrogallol is the agent I employ, with ammonia as the alkali (the method adopted would be equally available with soda), bromide of potassium as the restrainer, and a large proportion of sulphite of soda as an anti-stain. It is not probable that dry pyrogallol is weighed or measured, as wanted, by any one largely engaged in developing operations; there is no advantage in so doing, much time is lost, and pyro filaments which would, necessarily, be liable to be floating about in the air of the room, would be inimical to cleanliness and a spotless condition of plates. Hence in my laboratory a supply of this chemical is kept ready dissolved, and the solution measured out when required. The sulphite used is always added to this solution, though some operators mix it with their alkali solution; if there be any more value in one than the other method theory certainly points to the latter as being the better. The function of the sulphite is not, as is so often believed, to preserve the pyro solution from discoloration; it is to reduce the staining of the film to a minimum. That was the purpose its introducer, Mr. Berkeley, indicated, and that is the true purpose it is employed for. It will, indeed, assist in preserving pyro solution from discoloration for a time; but a cheaper and better method is to add some acid; almost any acid will answer. When a little acid is also combined with sulphite in the stock "pyro" solution it is in the best possible condition for keeping unchanged for a considerable length of time. My formula is as follows:

Pyrogallic acid	1 pound
Sulphite of soda	4 pounds
Citric acid	½ ounce
Water (need not be distilled) enough to make	2 gallons

This gives a 5 per cent. solution; in other words a pint contains an ounce of pyro.

Next have a 5 per cent. solution of ammonia, made, as I need not say, by adding 1 ounce of the strong ammonia solution of the store to 19 of water.

I also have a 5 per cent. solution of bromide of potassium—an ounce of bromide dissolved, and water added to the bulk of a pint.

Finally—and here I touch upon a point that in times past has led to heated discussions—I keep on my shelves a solution of ammonia and bromide of potassium mixed. Four stock bottles in all.

It should scarcely be necessary to say that, to insure regularity in working, and the greatest approach to certainty of results, a certain brand or brands of plates should be kept to. If it be desired to try a new brand, by all means do so: but do not keep chopping and changing from make to make; it will be most difficult to get full value from the plates if this is done.

When a particular plate is first brought into use, the operator should, before putting them into use, ascertain the utmost amount of ammonia that can be used with them without producing fog, and when employing the proportion of bromide the makers recommend. There is in this a fairly-wide range; I have not found a marked difference, whether bromide to the extent of a fourth or a half of the ammonia present be used; but there is a vast difference as to the proportions of ammonia that can be used with different makes of plates. When I say the proportion of ammonia, I refer to the respective quantities of alkali and "pyro." All that is further desirable to know, is the strength of pyro needed to obtain sufficient density in a reasonable time; if more than this be used the extra pyro is simply wasted; if less, time is wasted.

Everything prepared as above, and an exact knowledge of the powers of the plate obtained, the actual development is reduced to its easiest, almost mechanical, form. I shall most easily explain my mode by going through the operation as I do now from day to day, with the plates I employ in largest quantity, namely, half plates for cabinet work. Studio work is very certain for exposures; and if a minimum of two plates be given (in practice I give more on an average) to every sitter, there is little feat of getting at least one negative correctly timed. This being so, I rarely develop an odd plate or two; I wait till I have a few dozen, and then develop all at once.

Immediately in front of me, and just over the main light of the room—always gas, for the sake of uniformity—is a shelf on which are kept a series

of four pint bottles, kept continually replenished from the stock, and also several wide-mouthed bottles, each containing an ounce of the 5 per cent. ammonia diluted to ten ounces with water.

On plates I am now using will only permit ammonia in proportion just equal (or a little over) to the pyro present.

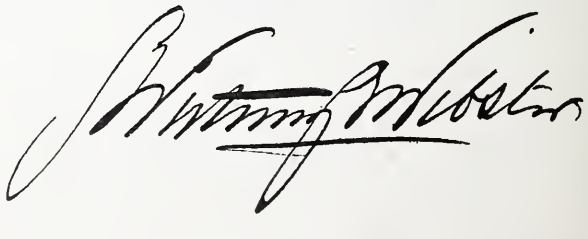
I endeavor to make my exposures so as to be corect when two-thirds of this possible maximum is employed, thus leaving me a fair margin for forcing up underexposed plates. If the full quality of alkali be estimated for, and a plate is found underexposed, there would be no remedy, for the addition of ammonia beyond the fogging-point is entirely futile, no further detail is brought out, the attainment of density is interfered with.

The plates alluded to will attain full density with very little more than one grain of pyro to the ounce of developer. I mix half a gallon of developer as follows: Four ounces pyro solution, two and half ounces of ammonia and bromide solution, are placed in a jug capable of containing just half a gallon, and then turn water in from the tap till the jug is full. An assistant hands me a developing tray full of exposed plates (as a matter of fact, I have two or three trays full), and the developer is poured swiftly yet without splashing upon the plates and a large, flat brush passed across them to prevent air-bells. In a short time the image appears in the usual manner, and at once it is seen whether the exposures are right. If correct, the development is continued till the required density is obtained. Possibly some of the plates are "under;" if so they are rapidly sorted and put together, the dish tilted, and the whole, or a portion, as deemed necessary, of the ten ounce bottle of ammonia above described, put in, mixed, and the dish laid flat again. Here will be seen the object of having this small bottle of weak ammonia.

At this stage seconds of time are of importance; by having the alkali ready, and in the wide-mouthed bottles, it can be added in one second, and, being diluted, less time is needed to ensure the requisite amount of mixing without producing stains—most important factors these, as a number of plates cannot be developed at once unless promptitude and quick decision govern the operator's actions. We will suppose the development concluded; the next operation is to wash before fixing. Formerly I used to wash each plate under the tap: but this is very slow, and now I turn over the dishful of negatives to an assistant, who at once empties a gallon jug of water on to them in the dish, a far better plan than turning the water tap, as all are at once covered with water, and there is no possibility of streakiness through the stream of water falling on one spot only from the tap. Many plates have thus spoiled without the worker being aware of the cause; or it must be known that the development and densification of a plate still proceed for a considerable time, although it be immersed in water, or placed under a current from the tap. For this reason great irregularity in the amount of density is easily brought about, if some plates are allowed to soak in water for a considerable length of time, waiting to be fixed, while others are fixed very shortly after development. Having by painful experience had this knowledge brought home to me, I avoid this uneveness in the densities of a batch by immersing the plates in an acid solution after they are washed.

The jugful of water, as explained, is thrown upon the negatives, and allowed to remain for one minute only, and is then poured off. Into the same dish is then placed a solution of sulphite of soda acidified with sulphuric acid till it faintly smells of sulphurous acid, and in this the plates may soak for a minute or an hour, and yet no alteration in density be brought about. The reason is that pyro will not develop gelatine bromide plates unless it be alkaline; the acidified sulphite solution quickly neutralizes the ammonia, development is then arrested, and, further, any yellow stain, if there be any, is reduced or entirely prevented. All that now remains to be done is to fix. Here again time may be saved. Instead of taking the plates out one by one and placing in fixing solution in another receptacle, they are still allowed to remain in the dish, and, without any washing, hypo solution is poured on, the dishes stacked one upon another, and the pile occasionally worked about to prevent stains till the batch is ready for transference to the final washing-trough. From beginning to end it will be seen the plates receive, practically, no handling; never being transferred from dish to dish, the maximum of negatives is thus produced in the minimum of time.

The above, I think, is a fairly complete account of how I develop my negatives, and is offered not by any means as necessarily presenting points either of novelty or superiority. I develop all my plates myself, and consequently need to do it in the shortest time, and this is "how I do it."



THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 619.)

CHAPTER XI.

Intensification of Gelatine Negatives: I.—Intensifiers Containing Mercury.

THE collodion process was displaced—for general work—by gelatine in the years 1879 to 1881.

Gelatine dry-plates consist of an emulsion of silver bromide in gelatine, spread upon glass or celluloid. By exposure to light, the silver bromide suffers a chemical change, though the precise nature of that change has not yet been ascertained withcertainty. The only point in dispute, however, is as to whether the non-metallic element bromine is separated altogether, or only in part (and if in part, how much?) from the metallic silver. For simplicity let us here suppose that the effect of light is to form a picture in metallic silver upon the surface of the gelatine emulsion. This picture is so weak that it is invisible; but when the developer (usually an alkaline solution of pyrogallic acid) is poured over the plate, it enables the reduced silver to attack and to decompose the silver bromide *lying beneath* it; and thus the image *grows downward*, and becomes visible at last when the *back* of the plate is examined. This is just the opposite of the action of development on a collodion plate. On the latter the image is built up from without, and upwards; on the gelatine plate from within, and the image grows downwards.

Negatives on Gelatine Plates Frequently Require Intensifying.—After a gelatine dry-plate has been exposed in the camera, and then developed, fixed, and washed to the best of the manipulator's ability, it is frequently found to give a very unsatisfactory print. In this case intensification *may* effect an improvement. It is a good plan always to take a print from any negative *before* intensifying it. Many negatives print better than they look; and in any case the print affords a means of estimating what improvement—if any—has been effected.

There are three principal causes for which intensification is supposed to offer a remedy.

1. Under-development.
2. Under-exposure.
3. Over-exposure.

We believe, however, that it is only in the last case, viz., thinness from over-exposure—that the intensifying process offers any real advantage. In *any* case the *best* remedy is—to take another negative. But where, from moderate over-exposure, a negative shows a delicate thin image, full of detail, it may, by intensification, be made to yield a passable print. This is one reason why all the text-books agree in recommending workers generally to err—if in doubt—on the side of *over*-exposure.

Intensification of Gelatine Negatives with Mercury Bichloride; followed by Ammonia or some other Darkening Agent.

1. *Intensification by Mercury Bichloride Alone.*—Make up the following solution:

Mercury bichloride (corrosive sublimate)	¼ ounce
Ammonium chloride (sal ammoniac)	¼ ounce
Hydrochloric acid	10 minims
Distilled water	10 ounces

Dissolve the sal ammoniac in the acid water; then powder the corrosive sublimate in a mortar, and add it to the solution. Shake well at intervals, and allow to stand for a few hours; then filter. The addition of the sal ammonia enables the water to more readily dissolve the mercurial salt. The bottle shouid be labeled *poison.*

The negative to be intensified should be thoroughly washed after being developed; it should then be soaked for half an hour in an alum bath; and then washed again in running water for one hour. It must then be allowed to dry.

It is a good plan to keep one dish—a glass one is to be preferred—specially for the work of intensification, as the solution employed will injuriously affect both negatives and prints which do not require its aid.

Soak the dried negative in water for ten minutes, and then place it in the mercury solution. Rock the dish gently. The image steadily whitens, until at last it becomes clearly visible as a beautiful positive. The chemical change is expressed by the following equation:

$$\underset{\text{Silver}}{Ag} + \underset{\text{Mercuric Chloride}}{HgCl_2} = \underset{\text{Silver Chloride}}{AgCl} + \underset{\text{Mercurous Chloride.}}{Hg_2Cl_2}$$

(*and* between Ag and $HgCl_2$; *produce* between $HgCl_2$ and AgCl; *and* between AgCl and Hg_2Cl_2)

Thus the white substance of which the image is now composed in a mixture of silver chloride and mercurous chloride (commonly called calomel).

The image, after this process, is slightly stronger and denser than before. But, being composed of white and somewhat translucent matter, the print which it now yields is only a slight advance in the above respects over that given by the original unintensified plate.

By acting upon the whitened image with one or other of several re-agents, it is possible to *change its color* to one which shall better obstruct the rays of light. The intensification will then be made more marked.

Blackening with Ammonia.—The plate which has been whitened by the mercury bichloride must receive a very thorough washing if the next process which it has to undergo is to be productive of prominent results. Rinse it thoroughly in two or three changes of water, and then wash it in running water for at least half an hour. The mercurial salt is much more soluble in water to which a little ammonium chloride has been added, than in water alone. Therefore soak the negative for ten minutes in water, 5 ounces, ammonium chloride $\frac{1}{4}$ ounce.

While this is being done, prepare the following solution :

Ammonia (strong)..... ..... 2 drachms
Water .....10 ounces

Place this alkaline solution in a clean dish, and immerse the washed and whitened negative therein. Its color quickly changes—first to brown and then to black. What is the cause of this?

$Hg_2Cl_2 + 2NH_3 = N_2HHg_2Cl$
Calomel *and* Ammonia *produce* Dimercurous Ammonium Chloride
$+ NH_4Cl$
and Ammonium Chloride.

The silver chloride is dissolved by the ammonia, and is washed away, together with the ammonium chloride.

The image is now weaker in point of quantity of material, than it was before the application of the ammonia ; for the silver chloride has been removed. But the change of color has made it more opaque. If the negative be now washed for five minutes, and then dried, it will (supposing it to have been thin and over-exposed to begin with) probably yield a much better print than before this process of intensification was carried out.

If twice the quantity of ammonia named above be used (4 drachms instead of 2), a somewhat blacker negative will be obtained.

If the application of ammonia produces, or is followed by spots and stains, it is a sign that the negatives has not been thoroughly freed from hypo by washing.

Blackening by Sodium Sulphite.—Instead of using ammonia, the whitened negative may be changed in color by immersion in a saturated solution of sulphite of soda, to which half its bulk of water, and two grains per ounce of citric acid, have been added.

Crush two ounces of clear crystals of sodium sulphite in a mortar and add eight ounces of water This ought to just dissolve the solid sulphite. Then add four ounces more of water, and shake well. This solution should be used soon after it has been prepared. The chemical action is now as follows:

$Hg_2Cl_2 + Na_2SO_3 + H_2O = 2Hg +$
Calomel *and* Sodium Sulphite *and* Water *produce* Mercury *and*
$Na_2SO_4 + 2HCl$
Sodium Sulphate *and* Hydrochloric Acid.

So that an image in black reduced mercury is obtained. Our own experience with this intensifier is that it imparts *less* density than ammonia. It is therefore a good intensifier for negatives that only require a slight strengthening.

Blackening by Ammonium Sulphide.—When a very considerable increase of density is required, the whitened negative may be soaked in the following solution:

Ammonium sulphide..... 1 part
Water .....20 parts

The ammonium sulphide is a yellow liquid possessing a very disagreeable smell. Its effect is to convert *both* the chlorides of which the whitened image is composed into their corresponding sulphides; and these are very black and opaque. Take first the action upon the mercurous chloride:

$Hg_2Cl_2 + (NH_4)_2S = Hg_2S +$
Calomel *and* Ammonium Sulphide *produce* Mercurous Sulphide *and*
$2NH_4Cl$
Ammonium Chloride.

A similar change is produced with the silver chloride:

$AgCl + (NH_4)_2S = Ag_2S +$
Silver Chloride *and* Ammonium Sulphide *produce* Silver Sulphide *and*
$2NH_4Cl$
Ammonium Chloride.

This powerful intensifier is apt, however, to block-up and destroy the half-tones. It is well suited, however, for copies of printed matter, etc., in which a dense black-and-white negative is desired.

Blackening by Potassio-Ferrous Oxalate.—To eight ounces of a cold saturated solution of potash oxalate, add two ounces of a cold saturated solution of ferrous sulphate. This is the ordinary "ferrous oxalate" developer. Its use in intensification was first proposed by Messrs. C. I. Burton and A. P. Laurie ; see *British Journal of Photography* for 1881, pp. 287, 294.

When the whitened negative is soaked in the above mixture, the haloid salts are quickly reduced to the metallic form, and we get the original silver image back again, plus an image in mercury.

The effect upon the silver haloid is as follows :

$2AgCl + 2FeC_2O_4 + K_2C_2O_4 =$
Silver Chloride *and* Ferrous Oxalate *and* Potash Oxalate *produce*
$Ag_2 + Fe_2(C_2O_4)_3 + 2KCl$
Silver *and* Ferric Oxalate *and* Potassium Chloride.

Upon the mercurous chloride (calomel) a similar effect is produced :

$$\underset{\text{Calomel}}{Hg_2Cl_2} + \underset{\text{Ferrous Oxalate}}{2FeC_2O_4} + \underset{\text{Potash Oxalate}}{K_2C_2O} = \underset{\text{Mercury}}{2Hg} + \underset{\text{Ferric Oxalate}}{Fe_2(C_2O_4)_3} + \underset{\text{Potassium Chloride.}}{2KCl}$$

(*and* / *and* / *produce* / *and* / *and*)

The mixture of the two metals (silver and mercury) in a finely-divided state, give a dark and opaque image. Additional intensity can be imparted by whitening the negative a second time with mercury bi-chloride, and then repeating the operation with ferrous oxalate as before.

Blackening with Potassio-Silver Cyanide.—Dissolve 120 grains of silver nitrate in 10 ounces of distilled water ; and add to it, drop by drop, a strong solution of potassium cyanide, until the white precipitate at first formed is *just* dissolved (stir with a glass rod). The solution ought then to look opalescent, or as if a drop of milk had been added to the water. Soak in it the negative which has been bleached with mercury bichloride (as already described) until it is quite black, as seen from the back. Then wash for an hour and dry. This method gives a considerable intensification, with very little blocking-up of detail. It is one which we have practised with much success.

Professor Meldola believes that the blackening is due to the following chemical reaction :

$$\underset{\text{Calomel}}{Hg_2Cl_2} + \underset{\text{Potassio-Silver Cyanide}}{2AgK(CN)_2} = \underset{\text{Silver}}{Ag_2} + \underset{\text{Mercuric Cyanide}}{2Hg(CN)_2} + \underset{\text{Potassium Chloride.}}{2KCl}$$

(*and* / *produce* / *and* / *and*)

The blackened image is therefore composed of silver and mercuric cyanide.

This method is due to the late Dr. Van Monckhoven.

Blackening with Hydroquinone.—In 1889 Dr. Mallmann, in Germany, and A. R. Dresser, in England, recommended the ordinary developing solution of hydroquinone, as made up with sulphite of soda, to blacken and intensify negatives which had been treated with mercury bichloride. The following solution answers well :

Hydroquinone	20 grains
Sulphite of soda	80 grains
Distilled water	5 ounces

This gives a fine bluish-black color to the negatives.

Intensifying Gelatine Negatives with Mercuric Iodide plus Hypo (Edward's Intensifier).—In the *British Journal Almanac* for 1880 (p. 56) the well-known plate-maker, Mr. B. J. Edwards, published a method of intensification which has been much used since.

Its latest form is as follows :

Dissolve 60 grains of mercury bi-chloride in 8 ounces of water. Add to this enough potassium iodide to *nearly* re-dissolve the red precipitate which is at first formed (about 150 grains will be required). Lastly, add 120 grains of hyposulphite of soda in crystals, and shake well. This should give a clear solution :

$$\underset{\text{Mercury Bi-chloride}}{HgCl_2} + \underset{\text{Potassium Iodide}}{2KI} = \underset{\text{Mercuric Iodide}}{HgI_2} + \underset{\text{Potassium Chloride.}}{2KCl}$$

(*and* / *produce* / *and*)

The negative to be intensified need be only slightly rinsed or washed before transfer to the above solution. It will there quickly gain in printing density.

Lastly, place the intensified negative in a weak fixing bath (2 ounces hypo to 20 of water), for a quarter of a minute (not more), and then wash well, and dry.

Intensification with Mercuric Bromide followed by Ferrous Oxalate.—Messrs. C. I. Burton and A. P. Laurie described in 1881* how to intensify gelatine negatives as follows :

SOLUTION A.

Mercuric bromide	1 part
Water	250 parts

This is a saturated solution.

SOLUTION B.

Ferrous sulphate (sat. sol.)	1 part
Potash oxalate "	2 parts

Pour the sulphate into the oxalate, and not *vice versa*. The mixture is the ordinary ferrous oxalate developer.

Bleach the negative in A ; then wash it, and expose it to sunlight for two or three minutes.

Then apply the developer (B), just as if developing a negative. The image blackens, and gains considerably in density. If still greater density be required, the whole process may be repeated. The plate must be left ten or twenty minutes in the doveloper in order to thoroughly blacken it. It must then be washed and dried.

The chemistry of this method will be similar to that where mercuric chloride is used, followed by ferrous oxalate

Gelatine Negatives Intensified by Mercuric Iodide, followed by Schlippe's Salt.—The following method was given in an editorial article in the *Photographic News* for 15th July, 1887:

Make a solution of mercuric iodide by adding a strong (one in five) solution of potassium iodide to a saturated solution of mercury bi-chloride. About $3\frac{1}{4}$ ounces of the former to 10 ounces of the latter

* "British Journal of Photography," pp. 287, 294.

will be right. The red precipitate which forms should just re-dissolve. For use, add 3 ounces of water to each ounce of the above mixture:

$HgCl_2$ + 2KI = HgI_2
Mercury Bi-Chloride *and* Potassium Iodide *produce* Mercuric Iodide
+ 2KCl
and Potassium Chloride.

Soak the plate to be intensified in this solution until it is nearly (but not quite) dense enough. Then wash well for one hour.

Make a solution of Schlippe's Salt (properly called sulphantimoniate of soda) in water of the strength of five grains per ounce. Soak the washed negative in this until the desired density has been obtained; then wash well and dry.

(*To be continued.*)



W. Jerome Harrison

LANTERN-SLIDES IN COLORS.

SOMETIMES it is desired and desirable to get lantern-slides having the image in bright color and the ground perfectly clear. The following process will yield such slides without any great trouble to the worker, with considerable certainty after experience, and without any steps wholly novel to the average photographer. The process is not in any sense original with me, it is due to Mons. A. Lumiéret, a well-known plate-maker of Lyons, in France. Mons. Lumiére not only sent me a valuable set of slides produced by his process, but referred me to his published writings, from which I at once gathered his *modus operandi*. There are no doubt in this article some slight variations from the exact tenure of Lumiére's instructions, but none the less it is his process merely adapted to such materials as I was able to obtain most easily in this country. Further I was indebted to Mr. Bird of the Autotype Company for placing at my disposal carbon tissue of various kinds made specially to facilitate my experiments.

The *rationale* of the process is as follows: A faint carbon transparency is made with a tissue very weak in pigment; the exposure is so arranged that the high lights shall be represented on the positive by little, or nothing more than bare glass; this image, or the *gelatine* of the positive, is stained with one of the aniline dyes, while the high lights, being represented by practically gelatine alone, remain unstained.

The practice to one with a knowledge of the ordinary "carbon process" is simple and not novel. And even those who have no experience in carbon printing will have no difficulty in picking up the necessary information even in this short article.

We require first a tissue containing an ordinary amount of gelatine, but very little pigment. We need just enough of pigment to prevent the light from acting right through the film of gelatine, and so rendering the whole film insoluble. As to the color of the pigment, we suggest that this may be made to depend on the color which we propose finally to give to our slide. We have found a reddish and also a bluish pigment to answer for final red and blue stains respectively; but as the developed image on the plate is barely visible, the pigment-color is of less moment than might appear likely. To render the tissue sensitive we immerse it in the ordinary solution of potassium bichromate—1 to 25 water—as recommended and sold by the Autotype Co. The tissue remains in the solution for from 3 to 5 minutes, according to the temperature, and then is lightly squeegeed on glass to remove superfluous liquid, and it is then hung to dry in a clean place and a pure atmosphere. It should be used soon after it is quite dry, and it should not be kept long after it is printed before it is "developed." On account of the small quantity of pigment overprinting is to be avoided. As of course the image is not visible during printing we use an "actinometer;" and the one we find most appropriate consists of the well-known small box containing a strip of sensitive albumen paper, and having on its lid a "tint" painted. We find that one tint is as a rule sufficient for any but very dense negatives. We expose our actinometer and our tissue, (behind the negative), at the same time to the same light, and when our albumen paper shows one print we stop the printing.

The image is developed in the usual way with hot water, but for our special purpose special steps

have to be taken. I made many attempts to get my image to adhere certainly to plain glass, but finally had to give it up and follow Lumiére's plan of developing on ground-glass. Finally ground-glass is immersed for a night in Carey Lee's cleaning solution—pot. bichrom. 1 part, sulphuric acid 1 part, and water 8 or 10 parts—and thereafter the plate is well washed in running water for some minutes, and well rubbed with a clean cloth. A plate properly cleaned in this way will retain the film without fail.

The tissue is soaked in clean cold water till after curling film inwards, it just shows signs of flattening out; then one of the glass plates is slipped into the water and brought up with the tissue in contact, face to face, gelatine to ground side. The tissue is then gently squeegeed to the plate, a piece of bibulous paper laid on the paper, back of the tissue, and a small weight laid on top of the lot. After about ten minutes the plate is ready for development.

It should have been stated earlier that a "safe edge" is to be given to the negative before printing; and for this purpose an ordinary slide-mask answers well. The tissue for printing should be cut exactly to slide-size, $3\frac{1}{4}$ inches square, and before immersing in the cold water it should be trimmed a little smaller each way.

After a dozen or so of plates have been squeegeed as above, or after a lapse of a few minutes, the plate is placed in water at about 90 deg. Fahr. It is left in this till some color is seen to ooze out at the edges, and then one corner may be carefully lifted with a knife-point, and the paper very gently raised from the plate. No force is permissible; if it does not come away it should get either more time or slightly greater heat. The paper being removed hot water up to, say, 120 deg. Fahr, is to be layed on the face till nothing is left but a very faint image, the ground being quite clear. Then wash in cold running water, and immerse for ten minutes in pure methylated alcohol. Then wash a little in water and apply the stain.

The dyes I have used are such as are employed by those who stain microscopical sections; but almost any aniline dye answers. I have used the following: Fuchsine, methylene blue, methyl violet, methyl green, and a few of another type, such as carmine, made up according to Orth's formula with lithium carbonate, and hæmatoxylin according to Ehrlich's formula. Of the red dyes I found the lithium-carmine to act best; of the blues, methyl blue; of the violets, gentian violet. These I use in all cases in strong solution, applying the dye for only a few seconds, and then washing it out "to taste" under a tap. As a rule it will be found safe to begin with a half-saturated watery solution of the dye, and to strengthen or weaken as found necessary. It is not easy to overstain, as prolonged washing will remove any of these stains, and it is a strong point that we can stain and wash out just as we please.

Now we have a positive on ground glass which evidently would not do for a lantern-slide; in order to make the plate clear we varnish it with a solution of dammar in benzole as strong as we can make it, short of causing lines on the plate. I have not succeeded in making my plates quite so transparent as those of Mons Lumiére, but mine are so clear that on the screen they appear to be plain glass

These are merely outlines of a process for which I see many possible uses. I do not expect that any one trying the process seriously will meet with any grave or mysterious failures, and this "digest" I offer to the readers of this Christmas Number.



Andrew Pringle.

HAND-CAMERA WORK.

MY object in starting the discussion on the above subject in THE PHOTOGRAPHIC TIMES was for the purpose of obtaining an interchange of ideas. Methods of operating with formulas of the chemicals used in development of snap-shot negatives the dissemination of these practical experiences would materially help the majority of amateurs towards the performance of better and cleaner work.

A hand-camerist may be very enthusiastic and yet not be a successful picture-maker, but a successful picture-maker cannot fail to be an enthusiast.

Besides being enthusiastic there are a few other

necessary characteristics, and as the operator possesses these to a greater or less degree, just in proportion will be the measure of his success. The first of these qualifications is to possess a quick, correct eye, for it is important to see quickly where and when to "press the button;" to determine quickly the strength and character of the light. "A good eye" is also required to aid in picking out the best point to expose from, to judge correctly the speed of shutter from the light reflected from the view, and to calculate therefrom the proper size of opening to be given the lens, so as to suit the conditions of light, shutter and plate. A "good eye" is of prime importance in getting the view properly in the finder, where it must be centred correctly, and it must be square with the edges thereof, for if there are buildings or high trees in view, and the view be taken lopsided, then the objects will appear as if they were falling off the plate. A "good eye" is a *sine qua non* when taking objects in rapid motion, for without it the moving objects may be either on the edge of the plate or off it entirely. Correct vision is also a great help in the dark-room, where there is so much patient watching in slow development, and to catch the changes which come over the plate quickly, as in cases of over-exposure and like conditions. Next in import is a "steady hand" in combination with a "cool head," lots of patience, some confidence or self-assurance, a modicum of brains, and last, but not least by any means, there is also required a great big lot of pluck, persistence, "sand," perseverance, or by whatever name you may be pleased to designate it. An operator having the above endowments combined with a proper amount of enthusiasm cannot fall short of eminent success.

The apparatus comes next in order of consequence. For ordinary street and landscape views, any of the cheaper grades of cameras will give satisfaction, especially those made by reliable firms, but if the very best and most difficult work is to be attempted, then the apparatus must be specially suited for that character of work. If the operator makes architecture or engineering subjects a specialty, he must be provided with a strictly rectilinear lens of moderate length of focus, and the camera should have a rising and tilting front, and, if possible, a swing-back as well, for, by a judicious use of these adjuncts, high buildings, towers, bridges, etc., can be taken with their vertical and horizontal lines at right angles to each other.

If very rapidly moving objects are the aim of the photographer, he must then call in play the very best optical and mechanical devices known to the art in connection with the most sensitive plates to be procured, for not only must the lens be quick and of large aperture, but the shutter must be also of the most rapid movement attainable. Take for example a fast trotting horse moving at about 40 feet per second, in front of, and at right angles to the lens, and about 60 feet distant; when we reflect on the above a moment or two, we are not surprised to learn that a shutter-speed of $\frac{1}{600}$ of a second is required for the successful production of a negative under these conditions.

Being possessed of a Knack, Triad, Waterbury or Henry Clay Camera, or any other equally as reliable instrument, we will explain how to use it. There are many ways of holding a camera steady. Some carry it under their right arm, with a strap over the shoulder to sustain the weight and make their exposures with the camera in that position, others hold it out clear of the body with both hands and catch their views thus. I got into my way of holding the camera from using a Clark Detective, which could not be handled any other way. I take the camera and press it to my stomach, grasping it near the front with one hand at each side, the forefinger of the right hand in position, to touch it off, when ready. By this way I am enabled to look down into the finder, and by twisting my body a little, can bring any part of the field into the view and by raising my arms or lowering them as required I find it easy to get the objects sought for in the finder. If I notice that the view is too large for the finder, I recede; if too small I approach closer, keeping the camera in position so as to press the button when the position is favorable. We are sometimes liable to criticise a snap-shot unfavorably without knowing the circumstances under which it was made and the conditions of light and other surroundings. We are apt to say of very short exposures, flat, hazy, lack of contrast, cold, slaty, etc., when perhaps the exposure was made in poor light, or with the most rapid shutter movement possible. When I consider these points, I am surprised to find any picture at all, and wonder at the marvelous quickness of light impressing the image upon that modern and wonderful discovery and achievment, the sensitive dry plate. Having made our exposures we will proceed to reduce the image on the sensitive film. This to me is the most seductive and pleasurable part of the business, and one of the first things to look after is the character of the light which illumines the dark-room, keeping in mind that we have been exposing plates of the highest sensitiveness, hence the light must be such as cannot possibly fog the plate. For this work I use a Scovill ruby lantern, covered with two thick-

nesses of orange fabric, and even when thus protected I expose the plates as little as possible to the light. Having proceeded thus far I determine what developer I will use. If the light has been good, and the view one which reflected an abundance of light, I invariably use hydrochinon, Chautauqua formula. It keeps well, is clean, clear and slow, but very effective. If I am uncertain about the light, and fear under-exposure, or if the light has been uneven, and think that some portions of the picture will develop much faster than other parts will, then I use hydro and eiko in combination as per formula given below. I do not use pyro, for in my hands in slow and tedious development I am sure to befog the image. For a correctly-timed exposure pyro cannot be excelled. I always keep it on hand, but seldom use it now as my work is chiefly snap-shot exposures. Before explaining my way of developing I will say to those who are not familiar with the process, that the developer is the pyro, hydro, eiko, etc. This is the reducing agent, and is sometimes termed the "reducer," it decomposes or oxidizes rapidly, hence must be used in combination with a preserving medium such as sulphite of sodium, or meta-bisulphite of potash. The developer can be accelerated and made to work quicker, and for this purpose carbonate soda and carbonate potassium are the alkali used, these excite and quicken the action of the reducer, and they are used in combination with it for that purpose. Sometimes the action of the developer is too quick or energetic, and must be diluted with water, or its action can be retarded by the addition of a few drops of a 10 per cent. solution of bromide of potassium

If amateurs will bear in mind that the developer is the reducer and the alkali the accelerator and the bromide the retarder, and act in accord with it, they will save many plates which would have otherwise been spoiled. We are now ready to proceed to develop our afternoon lot of exposures, we have kept no record, they are a mixed, uneven, uncertain lot; or, to make it still harder, we will suppose that we have a dozen of exposed plate to develop that we know nothing about except that they are a promiscuous lot of views on Carbutt's or Cramer's fast plates exposed with a medium shutter speed, we at once conclude to use the eiko and hydro developer compounded as follows.

DEVELOPER.

Eiko	100 grains
Hydro	100 grains
Sulphite soda	2 ounces
Water	16 ounces

ALKALI.

Sal soda	8 ounces
Carbonate of potash	4 ounces
Water	16 ounces

for strong developers use equal parts of each.

Into a tray we put one ounce of each of the above with four ounces of water and call this tray No. 1; in tray No. 2 I put one ounce of each and two ounces of water; in tray No. 3 I put two ounces of each without any dilution. In tray No. 4 I put four or five ounces of the following retarding solution:

Bromide of potassium	13 grains
Glycerine	3 drams
Water	32 ounces

I place the negative in tray No. 1, and cover the tray, rock gently and wait patiently until a faint outline of the image is seen. If it builds up gradually I remove it when the detail is well out, into the strong developer or tray No. 3, and force the development to a conclusion. I judge it by examining the plate by holding it up to the ruby lamp and looking through it—always aiming at over-development, if possible, as the negative will be reduced some in the fixing-bath: the above I would term a fairly-timed exposure. The next plate is treated in the same manner, but, after rocking and waiting, and looking for the image until our patience is well-nigh exhausted, and we begin to think the plate has not been exposed at all, we notice a faint discolorment on the film, the sky or some other high light just showing a trifle; we remove this to tray No 2, and wait patiently for it to build up; we rock it, and coax it along until all the details are out, and as it is thin, with no density, we place it in the tray with strong developer and force it out, removing it when it is dense enough—sometimes we cannot get the density or opaqueness required. We then treat it to a dose of old hydrochinon developer and let it remain there until it has acquired good printing qualities. In a case like the last we sometimes lose the image on the face of the negative as seen in the tray and can only judge it by looking through it. Indeed, it is the proper way in all cases to judge the density by transmitted light. This last negative we will term an under-timed or under-exposed one.

Our next negative on being put into tray No. 1 begins to show much quicker than any of the others, and as we watch it closely we notice that it assumes a different color from the others, instead of being a nice cream color, it is a dirty yellow—a sure sign of over-exposure. We quickly transfer it to tray No. 4 and let it remain in it a few minutes, then return it to tray No.1 for a few minutes,

then back again to tray No. 4, and so on, alternating until the details in the shadows show up strong and the high lights are fairly dense; then I place it in the tray of old hydrochinon developer to gain density, to remain therein until finished.

Our next negative, after being in tray No. 1 for a little time, begins to develop in streaks, or in some parts of the view and not in the other parts. Upon close investigation I conclude that the light has been uneven, the objects coming out are those that were in good light. I wait until I can distinguish plainly the objects, and if the dark parts are at each side with the light down the center, I then pour the developer to first one side of the tray and then to the other side, leaving the center part bare, and by thus manipulating I force along the darker parts and keep back the lighter ones, thus saving a plate which would be otherwise spoiled. I sometimes use two camel's-hair brushes, one for bromide and one for strong developer. These I use to retard or force parts of the negative which may require it. I have given in this sketch my way of working the different exposures most likely to be met with in an amateur's practice. This I arrived at after many failures. It is the best I know of, and if there is any better I would thank the person who knows of it to tell me and others of his *modus operandi* through the columns of THE PHOTOGRAPHIC TIMES, and he will, I am sure, receive the hearty thanks of many of the readers of that popular journal as well as those of your humble servant.

Thomas J. Bray.

Correspondence.

A PHOTOGRAPHER AT THE SITE OF THE GREAT EARTHQUAKE IN JAPAN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Probably you heard by telegraph that there was a terrible earthquake in Japan on October 28.

It was not felt severely in the capital, but the nature of the motion as recorded at the seelsmological laboratory, indicated that it had probably been very severe in some parts of the country. Presently it became known that the center was southwards. Rumors of destruction came to Tokio, and it was all the more alarming that they were only rumors. The telegraph lines were down and nothing definite could be heard.

By the twenty-ninth, however, it was certain that the destruction had been fearful and that there was much loss of life On that day I, among others, received instructions to proceed to the devastated district and to investigate matters. In my case also to take photographs that may be of technical or scientific interest. I started on the thirtieth and am now—November 1st—within the devasted district; on the edge of it only I am told, but, as the telegraphs are still all interrupted, I cannot tell. People journeying from Gifu, however talk of destruction there compared with which that here is trifling. Yet here is such a state of affairs as I had never conceived. Whole acres of what had been houses reduced to such a chaos of ruins that they are nothing but heaps of rubbish on the ground; the confusion so complete, that what remains of one house cannot be distinguished from what is left of another. Bridges lying in the beds of rivers. The people camping out in the middle of the street in box-like structures, hurriedly made up of sliding doors of paper or wood, straw mats, etc., either because they have no houses to go to, or because they are too terrified to enter their houses, as the ground has not ceased to shake yet.

I live in a large tea-house that has been only partly wrecked. I know, from the history of all past great earthquakes here, that the chances are that no further great shock will come. Moreover, I did not go through the horrors of the other day, so I feel no anxiety about myself; but all the people of the house, though they do their work indoors during the day time, camp out in the street at night.

Assuredly this great disaster proves the wisdom of the Japanese in adopting this light—or "flimsey" as it is often called—style of architecture that they have. Looking at the destruction around it seems incredible that only a small fraction of the population has perished.

So far as reports have been received the number of houses "totally destroyed" is measured by the tens of thousands, while the deaths recorded do not reach two thousand.

Above all things noticeable is the wonderful fortitude or resignation of the people. I have been among them the whole day and have heard no word of protest against the cruel fate that has caused them the loss of their all; not even a complaint or a murmured expression of regret. At the most "shikatagamai"—literally "doing side is not," but equivalent to our "it can't be helped."



Yours truly,

W. K. Burton

NAGOYA, Japan, November 1, 1871.

AN INQUIRY.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have been much interested in the articles on development which have been running in THE PHOTOGRAPHIC TIMES, being especially instructed by the last

one, by Mr. S. P. Wells. He kindly offers to give additional particulars to any one who may inquire of him through these columns, and I gladly take advantage of his kindness.

I wish that he would tell us why it is that so many negatives, evidently well-timed and properly developed (for they appear all right in the developing solution) should come out so weak after being fixed. I do not seem able to determine when the proper density has been obtained. Is it the fault of my dark-room illumination, or my method of development? I use the Cramer plate.

Very truly yours,

J. M. B.

SPRINGFIELD, Mass.

AMERICAN VERSUS ENGLISH PLATES.

To the Editor of THE PHOTOGRAPHIC TIMES:

Do you know what the English Climate is? Have you spent a summer in this charming country, armed with a Kodak or other camera, tempted to photograph a few of the thousands of picturesque "bits" in this old world? Has a thatched-roof cottage, an ivy-covered ruin, or an antique church tower any attractions for you? Have you come, seen and—gone away using bad language because the rain fell in torrents and the moisture oozed out of the pores of your camera? And have you, after your return to the sunnier clime of America, ever tried to use the plates that have grown mouldy in your slides?

If you have had such experiences you can fancy the trials of an amateur photographer who dwells in the dampest corner of England, in a stone house which possesses no cellar—a residence in which you must keep all the metal work of your cameras and shutters smeared with vaseline to prevent rust. This permanent moist condition of the atmosphere not only effects one's temper, but is even more injurious to one's dry plates. Consequently when a fine day arrives—for we do have them occasionally, and they remind me of the famous little girl with the curl, for "when they are good they are very good indeed" (in fact they cannot be equalled elsewhere), but "when they are bad they are horrid." But, as I said, when a fine day arrives and you sally forth to photograph "yon ivy-mantled tower" you return, no doubt, rejoicing in the anticipation of a splendid picture, but, alas! you find that your plates have been ruined and are in a worse state of mouldering decay than the ruin you have tried to photograph. I have been there and know all about it, as the slang expression runs. I have tried nearly all the best-known makes of English plates, from Wratten & Wainright's down to the cheap Ilford, but only to find that the "beastly" fog gets into them all. But mark my experience with American plates.

Years ago I was an ardent amateur, using plates by the hundred. Having run the gamut of English plates I bethought myself, about four years since, of some American plates I had used in the old days at home, which had given good results. Eventually I imported a few boxes of the well-known maker, Carbutt's plates. I used them for my most important work, not liking to waste good material. Mr. Carbutt took great pains in packing them. I believe he superintended the process personally, using great precaution to prevent damage during the sea-voyage. Three years ago I was laid on the shelf photographically; for eighteen months I never touched my camera, and since then I have only been able to work occassionally. I had a large supply of plates on hand, which meanwhile were stored in a cupboard in my hall. During the winter this hall is heated by a common stove, for the all-pervading influence of furnace-heat is unknown to this country; but during the summers and autumns no fires were lighted in this place—a fact that will be appreciated after reading my opening remarks. Well, quite recently, after my plates had been so packed for three years, I took from their resting-place a box of Mr. Carrbutt's Eclipse Plates, wiped of the dust, unwrapped the oil-paper in which they were enclosed and used some of them. But that was not all. Accidentally I left the box in my dark-room where it lay for a month during the rainiest weather I ever experienced even in England, and, moreover, there was a certain amount of evaporation from hypo and other baths, which had been left unemptied. When I was well enough to revisit this realm of darkness I stumbled upon this box of plates, but imagined they had all "*gone phut*" as the Scotch say. Thinks I to myself, I'll try them for they are Carbutt's plates and are too good to be wasted. So I filled my holders from this box and from a box of Ilfords, which had lain in the dark-room for the last month, also. The result with the Carbutt plates was excellent but the Ilfords were not worth printing. It was a severe test but the plucky Americans stood it so well that I think you will all admit that they "beat the Britishers all hollow." If all American plates are equally as good I say "Let the American eagle screech, wave the stars and stripes and shout, hurrah!" Even some of my friends among the John Bulls admit that these plates are unequalled.

Yours truly,

Francis B. Troup.

Notes and News.

Merry Christmas!

Promise little, Do Much!

How do you like the Chistmas Number of THE PHOTOGRAPHIC TIMES?

Have you read the Prospectus of THE PHOTOGRAPHIC TIMES for 1892?

13,237 copies of the 16,000 copies of "The American Annual of Photography" for 1892 have already been sold.

Miss Adelaide Skeel has been invited to lecture at Chautauqua next year on a photographic subject.

The School for Officers of the United States Army at Fort Leavenworth has for one of its courses photography.

Nearly all the leading newspapers have now a regular department devoted to photography.

The Toledo Camera Club have arranged a prize contest to be participated in by all members.

Have you secured a copy of Grant's Memoirs?

Who will be the next to contribute toward the Maddox Testimonial Fund?

One Dollar, sent to the publishers by a new subscriber, will obtain THE PHOTOGRAPHIC TIMES for three months. Send them your dollar!

What would make a better Christmas present for a photographic friend than a year's subscription to THE PHOTOGRAPHIC TIMES?

Music and Slides.—At the regular monthly meeting of the Agassiz Association, Manhattan Chapter, December 14th, a large exhibition of lantern-slides was held accompanied by appropriate music.

Andrew Pringle, the author of "Photo-Micrography," has over 700 negatives of bacteria among many other medical subjects. These photographs of bacteria as well as pathological specimens adorn many books, and are used regularly in several medical schools in lectures.

Less than Nothing!—With the Grant Memoirs and the *Cosmopalitan*, THE PHOTOGRAPHIC TIMES costs less than nothing! How? This way:

Grant's Memoirs (original subscription edition),	$7 00
Cosmopolitan Magazine, - - - - - - -	3 00
Total, - - -	$10 00
With THE PHOTOGRAPHIC TIMES, only - -	$7 70

The C. E. Hopkins Company, of Brooklyn, has been incorporated at Albany to carry on the business of manufacturing and dealing in articles appertaining to photographing and photographic supplies. The capital stock is $20,000, consisting of shares of $25 each, and the directors are Clarence E. Hopkins, Edward R. Hopkins, James M. Hopkins, Josephine B. Hopkins, and John Buys.

Will Not Have a Building.—We learn from Mr. Gentile, of Chicago, that photography is not to have a building devoted entirely to it at the World's Columbian Exposition, but will be classed under the department of Liberal Arts, as already recorded in these columns.

We have not yet heard of the appointment of Mr. Gentile as Superintendent of the Photographic Department at the Columbian World's Fair. He certainly is eminently fitted for the position, and we hope he will accept it if appointed.

A Photograph Paste may be made by mixing 10 parts arrowroot with a small quantity of water and warming 4 or 5 minutes. Then soak 1 part gelatine in 109 parts water and mix with the arrowroot, and when cool add 10 drops alcohol and a few drops of carbolic acid.—*Drug Circular.*

Instantaneous Photography, as an aid to Science, History and Art, was the title of a lecture delivered by Wallace Goold Levison, before the New York Camera Club, Monday, evening, December 7th.

The Montclair Camera Club.—The first annual meeting of this enterprising young club was held in its new rooms on Bloomfield Avenue, Tuesday evening, December 8th. Following are the officers elected for one year: President, Rev. F. D. Carter; Vice-President, A. W. Seward; Secretary, H. S. Thomas; Treasurer, W. L. Gutterson; Directors, T. G. Sullivan, Howard Ayres and Miss Rand. A constitution and by-laws were adopted. About thirty prominent amateur photographers have already joined the club.

The Fifth Annual Exhibition of the Photographic Society of Philadelphia, Society of Amateur Photographers of New York, and the Boston Camera Club, open to all photographers, professional or amateur, will be held at the gallery of the Boston Art Club, May 2d to 5th, 1892, under the auspices of the Boston Camera Club. Full particulars may be obtained by addressing Wilbur C. Brown, Secretary, Boston Camera Club, 50 Bromfield Street, Boston, Mass.

Endurance of a Daguerreotype.—A remarkable example of the enduring qualities of the daguerreotype is to found in the old graveyard at Waterford, Conn. In the headstone that marks the grave of a woman who died more than forty years ago her portrait is inlaid, covered with a movable metal shield. The picture is almost as perfect as when it was taken.

Chloride of Gold and Potassium.—A new stable salt, not acid, not deliquescent, can be made, according to A. Lainer, by dissolving 100 grammes of pure gold, cut into small pieces, and carefully placed in a vessel, with aqua regia by the aid of heat. The solvent is added in small quantity only and heat applied by the water bath. After cessation of action, the solution is poured off and fresh acid added and the process repeated till all the gold is dissolved. The combined solution is then heated in a flask, and to it is added 38 grammes of chloride of potassium dissolved in as little water as possible. The solution is then set aside, and, after crystallization results, the mother liquor is poured off, crystals drained and heated to 100 degrees C. to drive off the acid These crystals contain 51.99 per cent. of gold and 19.96 per cent. of chloride of potassium and have the formula $AuCl_3KCl$.—*Pharmaceutical Era.*

The New Portrait of the Pope.—The greatest men are not always the best subjects for portrait painters. M. Chartran, the Parisian artist, who received the commission to put Pope Leo's likeness on canvas, had much trouble to persuade his holiness to endure the tedium of posing. He has represented Leo XIII seated in a red armchair, his hands resting on the arms, while one foot in a red slipper peeps out on a red cushion. A red mantle drapes his holiness' shoulders, and a diamond and sapphire ring and a pontifical cross on his breast relieve the pure white costume. The portrait is to be engraved for the benefit of the faithful.

PHOTOGRAPHING SNOW SCENES

ENTHUSIASTIC amateurs, who delight in the companionship of their cameras out of doors the year round, find their subjects during this season peculiarly difficult to photograph. A snow-covered landscape, with trees coated with ice; or bare, appearing more black by contrast with the glittering whiteness around, is, indeed, an iuspiring picture and one that rarely fails to tempt the amateur photographer. But it requires an experienced judgment and peculiar skill to reproduce the charming scene satisfactorily by the camera.

Let us first take for example a snow-covered scene in which trees, schrubs and buildings are completely eveloped in white. Such scenes are by no means uncommon in the country at this season of the year, and very beautiful they are to all lovers of nature. The trees and bushes are glittering with ice, the fields sparkle beneath the sun. Here are no contrasts, only a mass of brightness, glitter and glare. How shall we photograph it? How give form and outline to the scene, gradation and half-tone in the lights and shadows? For it must have all these in order to please.

First we must select the time of day to photograph when the sun is at one side of our camera and a littte behind it. This may be in the early morning or the afternoon; depending, of course, on the point of view we have chosen for our camera. The view is selected one and the light noted. On another day, at the right time, we return to the spot with our camera and make the exposure. This is a good way to proceed in making any kind of a photograph; it is the only way to photograph snow scenes. At noon we can do nothing. In the early morning or late in the atternoon the shadows prevail, if at all, and lie across the snow in long, soft masses of gloom, giving contrast to the view and somewhat subduing the light.

Some winter days the sun is obscured, so that the shadows are very soft and the snow is devoid of reflections. Such days are the very best, of course, to photograph scenes covered with snow. Early in the morning or near the close of a winter's day we find these soft conditions of light almost always. Then is a good time to make the exposure. It need not be so long in duration as with the other class of snow scenes we shall consider, for the light is rather weak, and a brisk development is therefore required to give the proper contrast to the negative.

This general method must also be employed in photographing isolated bits of frost work, such as a clump of bushes sparkling with ice-jewels. The subject is simple and perfect in itself. We have not to provide for surrounding conditions, but, moving our camera near enough to the subject selected, we cut out the landscape about and merely photograph the icy subject complete in itself. And many such subjects will present themselves on a winter's walk, They are not difficult to photograph if the proper precautions are taken, and they make beautiful pictures, appropriate for Christmas cards or other winter souvenirs.

The other and perhaps the larger class of snow scenes is quite different from that which we have been considering, and is naturally photographed quite differently. In it we have pictures of the greatest contrasts—dazzling whites and deepest blacks; a hill covered with glittering snow, lined on its summit with the darkest pines. Our problem now is to overcome contrasts and give softness to our photographs. As before the light must be subdued. Overcast days are employed and the exposures are made in the morning or afternoon. The sun must fall as before, from one side and a little behind the lens. But the exposure must be ample and the development very slow.

The development of snow pictures requires the greatest skill. When the exposure has been short, as in the case of the first class of snow scenes mentioned, the developer must be of full strength in order to bring out all the contrasts in the picture. A pyro and potash developer, as prepared for instantaneous exposures, will be found to work well with these briefly-timed snow pictures. But for developing the amply-exposed plates on subjects possessing only too sharp contrasts, it would be altogether too powerful and act too quick. If used at all it should be reduced to at least a third of its normal strength, and no bromide of any strength employed with it. If a restrainer is necessary a citrate of borax should be used. A developer weak in pyrogallol, suitable for developing this class of snow pictures, is made by adding to a normal solution two or three times its bulk of pure water. Begin development in this greatly weakened solution and allow the image to grow very slowly in it for a time. As the details appear more fully the developer may be strengthened somewhat to insure a proper density; but this must not be done until near the end of development for great contrast in the subject is to be overcome and a natural softness and harmony secured.

Fixing, washing and the subsequent processes are, of course, the same as with other developers. But in toning and mounting snow scenes there is room for the exercise of good taste. Do not tone a winter picture to a warm brown and mount on a chocolate or similarly tinted card. Let the toning be carried to cold blacks and whites, and mount on white or pearl cardboards. Bromide paper will yield peculiarly appropriate effects for winter negatives and the platinotype may also be employed with good effect. With these papers possessing a rougher surface than the ordinary albumenized silver paper, and developing with the peculiarly effective dark tones, winter landscapes may be reproduced more appropriately, perhaps, than on the common albumenized silver paper. Ferroprussiate or "blue" paper is also especially suitable for this class of printing, and, when worked on with the colors harmonizing with the appropriate blues and whites of the cyanotype, it is surprising how much art-feeling can be given a "blue" print of a winter landscape. The additional work with pencil or brush must not be overdone, the slightest touches here and there being all that is necessary to bring out an effective result. Any one who has taste will be found to possess enough to do all the retouching on a blue print that is necessary to make it a very pleasing picture.

They may be remounted on large sheets of heavier paper, leaving broad white margins, not unlike the methods employed for mounting water colors. Frame in narrow, light wood; or preserve in portfolios or albums.

W. I. Lincoln Adams,
In Outing.

The Editorial Table.

Representative American Yachts, Parts 4 and 5, Photographed and published by Henry G. Peabody, Boston.

This important collection of 100 views, by Henry G. Peabody, of Representative American Yachts has already been noticed in this magazine, and a specimen illustration was brought out as a frontispiece.* It is one of the most ambitious enterprises in the publishing line ever attempted by a photographer, and we are pleased to see evidences of the success which has rewarded Mr. Peabody's enterprise. In the artistic sense the success of the work was assured from the start, for Mr. Peabody's marine photographs have long been known to be among the very best. The reproductions are by the Heliotype Printing Co. of Boston, and simply could not be better. They preserve all the beauty of the original negative, and add much to them by the appropriate and delicate tints which are chosen for the prints.

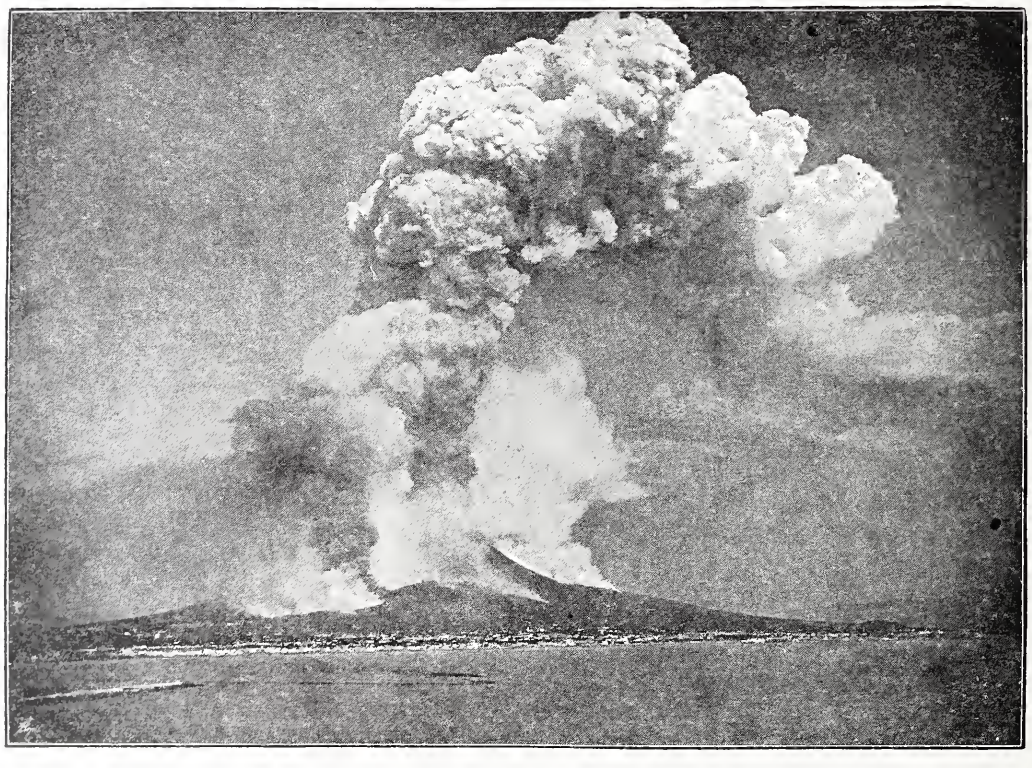
PART 4 consists of plates 81–90, being pictures of 30-footers. There are eleven yachts represented in this part, namely: "Mildred," "Fancy," "Kathleen," "Margorie," "Chieftain," "Mignon," "Beetle," "Smuggler," "Nameless," "Hornet," "Eureka." The pictures are prefaced by descriptive sketches written by George A. Stewart, a well-known authority on all matters pertaining to yachts and yachting.

PART 5 contains plates Nos. 41–45, pictures of 46-footers. Magnificent views of the following ten well-known yachts comprise this part: "Gloriana," "Beatrix," "Oweene," "Sayonayra," "Mineola," "Barbara," "Alborak," "Jessica," "Nautilus," and "Thelma." The descriptive letter-press in this as in the other parts is written by George R. Stewart. Subscriptions should be sent to Henry G. Peabody, 122 Boylston Street, Boston, Mass.

* "Gossoon," August 21, 91.

A Story of the Hills, by the Rev. H. N. Hutchinson. New York: MacMillan & Co.

This is a book about mountains for general readers. It is a popular account of mountains, and how they were made, and is dedicated "To all who love mountains and hills." The illustrations are largely from photographs by well-known mountain photographers. We give our readers a specimen of one, being an instantaneous photograph of the Eruption of Mount Vesuvius in 1872. "A volcanic eruption may be described in a general way as follows," reads the description. "Its advent is heralded by earthquakes affecting the mountain and the whole country around; loud underground explosions are heard, resembling the fire of distant artillery. The vibrations are chiefly transmitted through the ground; the mountain seems convulsed by internal throes, due, no doubt, to the efforts of the imprisoned steam and liquid rock to find an opening. These signs are accompanied by the drying up of wells and disappearance of springs, since the water finds its way down new cracks in the rocks, caused by the frequent shocks and quiverings. When at last an opening has been made, the eruption begins—generally with one tremendous burst that shakes the whole mountain down to its foundations. After this, frequent explosions follow with great rapidity and increasing violence, generally from the crater. These are indicated by the globular masses of steam which are to be seen rising up in a tall column like that which issues from the funnel of a locomotive. But sometimes the whole mountain seems more or less engaged



THE ERUPTION OF VESUVIUS IN 1872. FROM AN INSTANTANEOUS PHOTOGRAPH.

in giving out steam, and thus to be partly enveloped in it. This is illustrated by our engraving from an instantaneous photograph of Vesuvius in eruption in the year 1872. The steam and other gasses, in their violent assent, hurl up into the air a great deal of solid rock from the sides of the central opening, after first blowing out the stones which previously stopped up the orifice."

The book is beautifully printed, and neatly bound in green cloth, with gilt decoration.

Odes, Lyrics and Sonnets from the Poetic Works of James Russell Lowell, and Latest Literary Essays and Addresses of James Russell Lowell. New York and Boston: Houghton, Mifflin & Co.

The recent death of James Russell Lowell seems to make all that he ever wrote or did of greater value to his admiring countrymen. These latest Literary Essays and Addresses, most of which have never before been published, will be received with especial delight by Mr. Lowell's admirers. They include Gray, Some Letters on Walter Savage Landor, Walton, Milton's "Areopagitica," Shakespeare's "Richard III," The Study of Modern Languages and The Progress of the World, and they are now given to the world in this form in accordance with an intention of their author. A splendid steel portrait of Lowell adds value to the book as its frontispiece. The volume is neatly bound in dark red cloth, and sells for one dollar.

The collection of Odes, Lyrics and Sonnets shows the best of judgment on the part of those who selected them. They are for the most part the poems which Mr. Lowell has himself signified as being his own favorites. The typography of the book and its binding could not well be better. Both are simply faultless and reflect credit even on the Riverside Press. The price of this dainty volume, so suitable for a Christmas gift is one dollar and a quarter. We reprint a characteristic sonnet which is especially appropriate in these colums. It is entitled:

MY PORTRAIT GALLERY.

OFT round my hall of portraiture I gaze,
By Memory reared, the artist wise and holy,
From stainless quarries of deep-buried days.
There, as I muse in soothing melancholy,
Your faces glow in more than mortal youth,
Companions of my prime, now vanished wholly,
The loud, impetuous boy, the low-voiced maiden,
Now for the first time seen in flawless truth.

Ah, never master that drew mortal breath
Can match thy portraits, just and generous Death,
Whose brush with sweet regretful tints is laden!
Thou paintest that which struggled here below
Half understood, or understood for woe,
And with a sweet forewarning
Mak'st round the sacred front an aureole glow
Woven of that light that rose on Easter morning.

Die Photographische Messkunst, oder Photo-Grammetrie. By Franz Schiffner. Wilhelm Knapp, Halle a/S, Publisher.

SURVEYING by the aid of photography, or photogrammetry, has made enormous progress during the last few years, and several very valuable books on the subject have been published in German, French and English. The author of the present book treats photogrammetry in a popular style, and devotes the first chapter entirely to explanations for beginners. In subsequent parts he treats of the history of photogrammetry, and the construction of the requisite apparatus, and devotes a chapter to photogrammetrical caculations and the correction of errors. The book is illustrated with 83 diagrams and cuts, and we recommend it to all interested in the art of surveying by photographic means.

"Die Autotypie in ihren verschiedenen Ausführungsarten." By J. O. Mörch. Edw. Liesegang, Düsseldorf, pub.

This is an exceedingly instructive and interesting book. The author's "Handbuch der Chemigraphie," translated into English, and incorporated in that state with other works on photo-engraving has been read with profit by thousands of Americans. The present volume may be considered an appendix to that work, and it is to be hoped that a reliable translator will soon undertake the task of making it available to all those photo-engravers not familiar with the German language.

Dessinateur et Imprimeur Lithographe, traitant de toutes les opérations lithographiques sur pierre et sur zinc, par M. A. M. Villon. 2 vol. in-18 et un atlas de 11 planches, de la *collection des manuels Roret.* Librairie encyclopédique de Roret. Paris, 1891.

"Lantern Slides and How to Make Them," by A. R. Dresser. London: Fry Mfg. Co.

This is an excellent little pamphlet on an important subject. The object of the little book is to put before beginners the simplest method of making lantern slides upon gelatino-bromide plates. "How many pleasant hours I have devoted to this absorbing occupation I cannot tell," says Mr. Dresser in his preface, "but the following pages are the outcome of my work." There are nine chapters in all, and the little book is illustrated by several descriptive cuts. It will shortly be for sale in this country.

The Photo American.—Loeber's *Photographic Herald* was greatly improved by its change to the *Photo American* in form and matter, if not in name. Its cover is similar to the *Photo American Review* which Loeber purchased and merged into his excellent periodical. The December number contains a picture of the "Night-Blooming Cereus," by R. Clinton Fuller, of Providence, R. I., very similar to the one which appeared in the PHOTOGRAPHIC TIMES many months ago, though we see no mention of our magazine in connection with the picture. The same number presents the cause of the Maddox Testimonial Fund, and contains a good deal of other interesting matter. The subscription price is $1.

Fred. Dean's popular lectures on the History of Music, in conjunction with the Scharwenka Conservatory of Music, will be held in Behr Brothers' Hall, 81 Fifth Avenue, Saturday mornings, December 12th and 19th, 1891, and January 9th, 16th, and 23d, 1892, commencing at 12

o'clock precisely. Subscription ticket (course of five lectures) is $2.00; single admission, 50 cents; Tickets may be obtained at the Conservatory office and at the door.

Promise Little, Do Much!—The management of the PHOTOGRAPHIC TIMES *promised* a *double* number for Christmas with *three* (3) full-page pictures. As a matter of fact, what do they *do?* They give *four* (4) full pages of pictures with *six* (6) illustrations, in addition to *twelve* (12) specially engraved portraits of as many eminent photographers. Instead of a *double* number (24 pages) they give THIRTY-FOUR (34) pages of reading matter of a quality never before published in any single number of a photographic magazine, and the advertising pages will be found of unusual interest at this time, as they form an almost complete record of the various photographic goods offered for the Holidays. Altogether our Christman Number forms an earnest of what our publishers intend to do throughout the coming year. They intend to "Promise Little," but "Do Much!"

Wouldn't be Photographed.—The set of photographs of the Lillian Russell Opera Company will always be incomplete. One of the artists refuses to have his picture taken at a regular photograph establishment, and it can not be done unless it should be with a detective camera. The company went to Sarony's in a body yesterday morning to be photographed. Miss Attalie Claire wanted the donkey that appears in the second act to go, too. The donkey was compliant and went. Those who have seen the opera will remember that this donkey is named Biscuit, because he is the next thing to the thoroughbred. When the party reached Sarony's door he indicated his intention of going no further. He had understood that the party wished his company for an airing in Union Square, and this seemed to him reasonable, but now he was asked to go up in an elevator, and it seemed more than his friends had a right to expect of him.

Biscuit is a strong donkey. One night he remembered an appointment and left the stage before his cue, and there were not men enough about the theatre to restrain him. He is generally tractable, but he will not break a promise that he has made to another or to himself This time he had promised himself that he would not go up in that elevator. Some hay was brought to move him, but he was not moved. A potato, a carrot and a beet were tried, but Biscuit was not tempted; a beat was tried, but the donkey was not constrained. A rope was found and was placed around him while strong men pulled thereat. They were not strong enough, or they did not pull hard enough. Biscuit did not suffer his foot to be moved. The second low comedian had an inspiration—something quite unexpected. He said there were certain baking powders that were better for raising biscuits than elevators. But Charlotte, the trifty ant of La Cigale, was not so thrifty as to have any baking powder in her pocket. Every one else disclaimed the habit of carrying it, and the last hope vanished. It is said that a portrait painter will be put into one of the boxes at the Garden Theatre, and will try to get the donkey's picture without his knowledge.—*St. Louis Globe-Democrat.*

Record of Photographic Patents.

464,783. Magazine Camera. Thomas S. Wiles, Albany, New York.

Queries and Answers.

182 P P. H. has had good success with Carbutt B plates and the Waterbury B, stop $\frac{f}{25}$, lens, an exposure of from 3 to 5 seconds, and S. P. C. pyro-soda. Of *late* he took a much quicker plate, by another manufacturer, and he also reduced the time to about one-half. The negatives are thin and feeble, and it takes a long time to develop them.

182 *Answer.*—The plate you have named is about 5 or 6 times more sensitive than the Carbutt B, and uncapping and capping the lens as quickly as can be done by hand would produce over-exposure with the same stop. Expose as quickly as you possibly can, and use at least stop $\frac{f}{35}$, but a beginner who is anxious to make pictures had much better adhere to the Carbutt B plate, at least until he is capable of overcoming the technical difficulties occurring under all circumstances with very rapid plates.

183 ALICE D. F.—What is meant by a "Rembrandt effect" in a photographic portrait?

183 *Answer.*—When the shaded side of the sitter is portrayed with the light more or less behind the head, the picture is given this name from a fancied resemblance to the works of that great master.

184 TERENCIO COLUMBUS, of Guayaquil, Ecuador, writes: I would be very much obliged to you if you would recommend some way to keep sensitized paper from spoiling by the pernicious influence of this climate, because notwithstanding I keep it hermetically closed up it never lasts longer than twenty-four hours. Don't you think it would be good to use chloride of lime in the preserving tube, as this substance has the property of separating the chlorine and avoiding thus the sensitized chloride of silver from oxidizing?

My plates are all covered with blisters, on account of the hot climate and dampness of the atmosphere. Can I submerge them in sulphate of alumina before developing, and can I use salicilic acid or camphor to keep them, without detriment to the sensitiveness?

184 *Answer.*—Sensitive paper may be well kept in preserving boxes, containing chloride of calcium, or hydroded oxid of calcium. The chloride of lime is mainly a hypochlorite salt and does not preserve. We advise to keep the sensitized paper, preserving box or not, between layers of blotting paper, impregnated with sodium carbonate. To submerge gelatine emulsion plates in sulphate of aluminium is a desperate remedy and will retard developing very much. Salicilic acid is also a very powerful restrainer, and if it is used as an antifride the exposure should necessarily be much prolonged. What camphor is capable to do in the matter is very hypothetical. We advise to use a dilute solution of tannin with the developer, Tannin hardens the film and at the same time is a developer. A young friend of ours, a resident of Paramaribo, nearly the same latitude as Guajaquil, has used of late the Harvard plate, and reports that with it she has encountered no trouble.



R. Eickemeyer, Jr., Photo.

THE OLD CABIN HOME.

N. Y. Photo-Gravure Co.

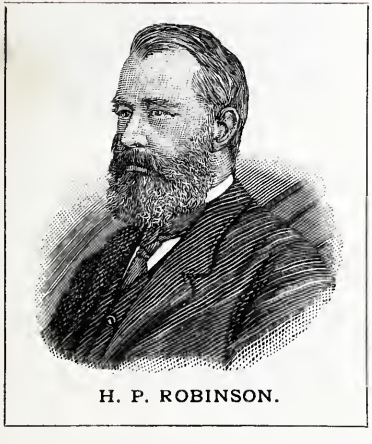
OUR MOTTO: PROMISE LITTLE, DO MUCH.

A YEAR WITH THE EXPERTS.

Following are a few of the LEADING FEATURES which will characterize

The Photographic Times in 1892.

AN EXCEPTIONAL YEAR.



H. P. ROBINSON.

H. P. ROBINSON,

The Veteran Artist, Photographer and Writer, will contribute a series of Papers of the highest educational value on

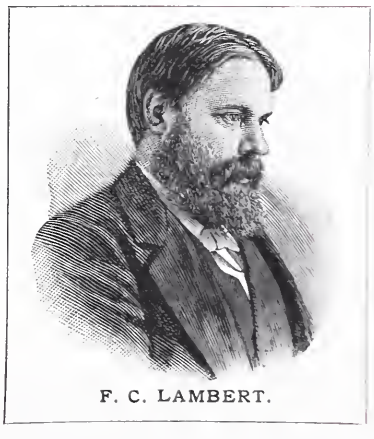
The Art Side of Photography.

REV. F. C. LAMBERT, M.A.,

The well-known Art Writer, will furnish frequent articles full of

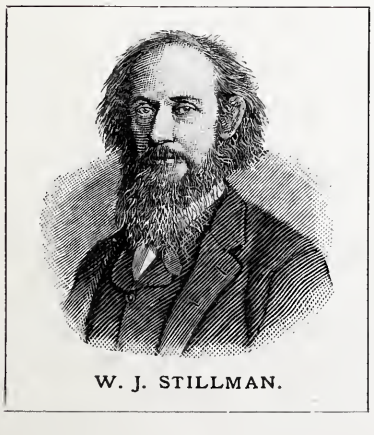
Practical Art Hints and Suggestions

for Photographers.



F. C. LAMBERT.

W. J. STILLMAN,

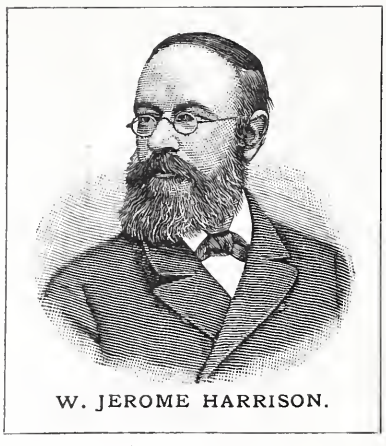


W. J. STILLMAN.

The widely known Art Writer, Photographer, and Experimentalist, will continue to instruct the readers of THE PHOTOGRAPHIC TIMES on

Practical Subjects,

including PICTORIAL PHOTOGRAPHY, PHOTOGRAPHIC MANIPULATION, Etc., Etc.



W. JEROME HARRISON.

Prof. W. JEROME HARRISON, F.G.S.,

will continue his Important Series of Chapters in

The Chemistry of Photography,

treating of

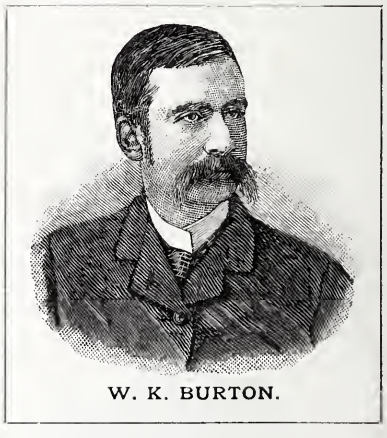
THE CHEMICAL ACTION OF LIGHT,
THE CHEMISTRY OF DEVELOPMENT,
REACTIONS OF THE VARIOUS DEVELOPERS.

Prof. W. K. BURTON, C.E.,

Will contribute from time to time articles of

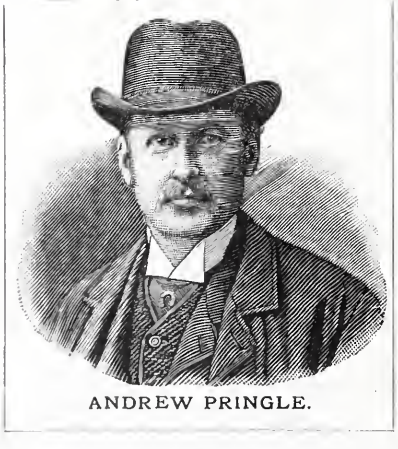
Greatest Practical Value

In DEVELOPING, PRINTING, TONING, etc., etc.



W. K. BURTON.

ANDREW PRINGLE



ANDREW PRINGLE.

Will treat of **Favorite Subjects**

of great value to all Photographers, Professional and Amateur.

G. WATMOUGH WEBSTER, F.C.S.,

The expert English Photographer, will describe

"How I Work,"

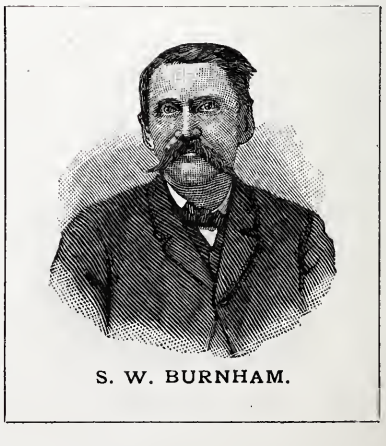
giving practical instruction for the Dark-Room and Studio.

Prof. S. W. BURNHAM,

The eminent Astronomer of the Lick Observatory, on Mount Hamilton, will furnish occasional

Papers on Photographic Work,

connected with Astronomical Research, and descriptive articles of great interest.



S. W. BURNHAM.

The Rise and Fall of the Daguerreotype,

AS SEEN BY A COUNTRY "OPERATOR."

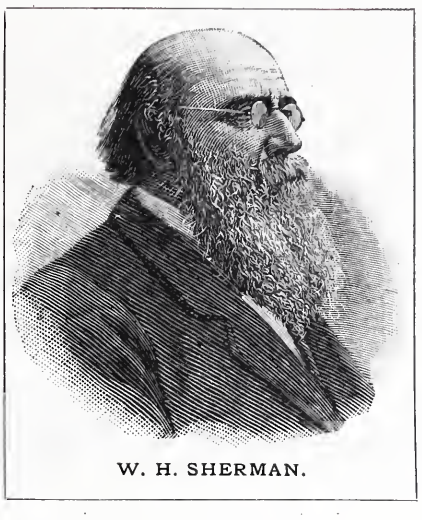
The interesting Historical Papers by the veteran

W. H. Sherman

will be continued.

P. C. Duchochois

Will furnish frequent articles on Practical Subjects.



W. H. SHERMAN.

Professor

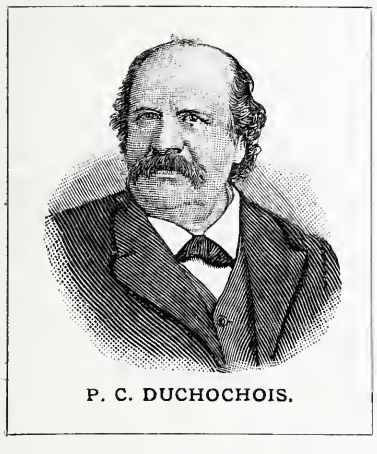
Chas. Ehrmann

Will contribute his characteristically valuable

PRACTICAL ARTICLES

ON

Dark-Room and Studio Practice.

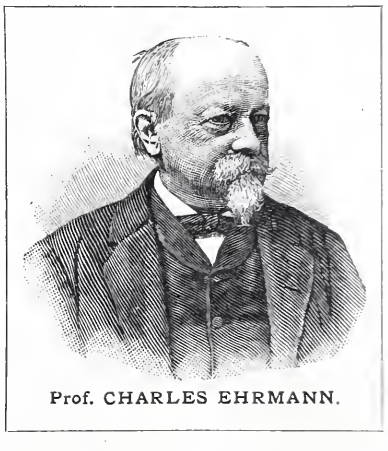


P. C. DUCHOCHOIS.

J. R. Swain,

The professional worker, will continue his

VALUABLE HINTS AND SUGGESTIONS FOR PRACTICAL WORKERS.



Prof. CHARLES EHRMANN.

ARTICLES ON VARIOUS SUBJECTS

Will be written by

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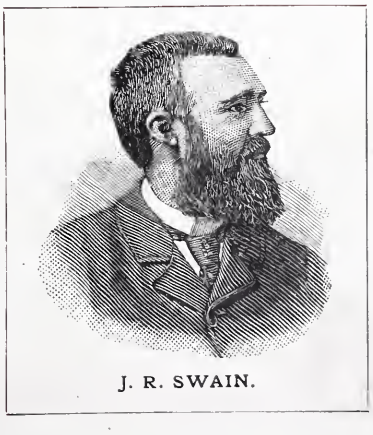
KARL KLAUSER,

C. D. CHENEY,

C. M. BROCKWAY,

Rev. C. E. WOODMAN, Ph.D

Miss ADELAIDE SKEEL.



J. R. SWAIN.

Will be written by

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W. I. LINCOLN ADAMS, Editor.

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Discount for term contracts.

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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

"THE PHOTOGRAPHIC IMAGE."

SOME UNSOLICITED TESTIMONIALS.

(From J. F. Ryder.)

I have been reading "The Photographic Image," and it has added to my knowledge upon the subject. No man can carefully read the book without learning something he did not know before.

Mr. Duchochois has plowed deep and sown good seed. Now let the reaper harvest his crop.

(From George Sperry, Operator for J. F. Ryder.)

I have read Mr. Duchochois' late book, "The Photographic Image," with much pleasure.

It is decidedly the best work on the subjects yet published. I find in it the verification of the results of many years of dark-room experience.

(From W. H. Sherman.)

The new volume by Mr. Duchochois promises to prove one of the most useful books, to both amateur and professional, that has appeared for some years.

(From J. R. Swain.)

I value it very highly, and shall add it to my library with great pleasure.

(From H. G. Pifford, M.D.)

It is by far the most practical and philosophical treatise on development that I have ever read. It should be in the hands of every amateur. To the professional who has acquired the art of developing it teaches also the science. In other words it points out why and the wherefore of the facts that have been gained by experience.

"THE AMERICAN ANNUAL OF PHOTOGRAPHY" is as usual a perfect mine of good things; photographic nuggets of all sizes. 120 of the very best writers have contributed of their "gray matter;" 24 beautiful half-tone engravings are sandwiched in between the articles and, as a wind-up, we have a lot of formulas, tables, etc., which are worth ten times the price of the book to any amateur or professional.—*Photo American.*

IN looking over the table of contents we find that every topic of interest to the photographer has been touched upon by writers who are famous. * * * Everyone who takes an interest in the business wants a copy of this "Annual," which is well up to its usual standard and and makes one more valuable addition to our photographic literature.—*The Eye.*

WHO IS "ENTERPRISE?"—In reply to an inquiry for the name of the enterprising dealer who issued the circular noted in our last week's number under Commercial Intelligence, we take pleasure in saying that it is Messrs. Woodard, Clark & Co., Portland, Oregon, who justify the title ("Enterprise") given to the article, as every one who has any business dealings with the firm well knows.

"THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOGRAPHIC TIMES ALMANAC" has just been issued by the Scovill & Adams Company, and it is the best of the series that they have published. The reading matter is well selected and covers almost every department of photography, while the illustrations are handsome and of the best work in the various processes that they represent. Of these there are twenty-five. The almanac also contains the usual calendars and, in addition, a great many formulas that are used in the art of photography. These will be found useful to amateurs who are desirous of advancing in knowledge of the work of making pictures, which is growing so rapidly and whose processes are multiplying yearly. A list of the photographic societies is also given, and postal and monetary tables. The book is neatly printed and arranged in an attractive manner.—*New York Times.*

NEW YORK, December 1, 1891.

Dear Sir: I beg to call your attention to my complete stock of cameras, both of the detective variety, such as the Kodak, Henry Clay, Premier, etc., etc., and all grades of view cameras; also my assortment of outfits from the lowest cost, for children, to the most complete and finely-equipped for high-class work.

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Catalogues mailed on application.

Write or call before making your holiday selections.

Very truly yours,
F. D. LANIER WALKER.

18 JOHN STREET.

Business Notices.

GREAT BARGAIN—I have the following Dallmeyer Lenses, brought over by me, perfectly new, never been used: One 6x5 Rapid Rectilinear, $45; one 6½x8½ Rapid Rectilinear, $57.50; one 8x10 Rapid Rectilinear, $90; one No. 4 D Pat. Port. and Group, $111. Will sell one or more of the Lenses at 20 per cent. off cash. Enquire of The Scovill & Adams Company for "Jones" Lenses, Advertised.

THREE HUNDRED DOLLARS ($300) cash will make independent some bright young man of good habits and skill as a photographer in a booming town of 15,000 in State. Free building, free advertising, partial outfit. Address
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BARGAIN.—$525 cash before January 1st, will buy newly-furnished gallery in Easton, Md., the largest and best equipped on Eastern shore. Going out of business. Address F. ELMER JOHNSON, Easton, Md.

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CLARENCE MORROW, Richmond, Ind.

FOR SALE—4x5 Waterbury Detective Camera with ten plate-holders; also 5x7 Henry Clay Camera.
H. CONTANT, 15 Wall Street, New York.

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GOVAN & CRAMPTON, 5 Clinton Pl., New York.

'87 AND '88 "ANNUAL"—C. H. Shepherd, of Melvin Village, N. H., offers a copy in paper covers of the 1887 and 1888 "Photographic Times Annual" for 75 cents postpaid. They are in perfect condition with the exception that one copy lacks one of the covers.

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STUDIO SALE, Care TIMES Office.

BARGAIN.—An Anschuetz Patent Instantaneous Camera, 3¼ x 4¼. Price, $5 each.
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"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
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S. P. C. EIKOQUINOL is a developer combining in one solution the virtues of eikonogen with those of hydrochinon, the production of finest details in middle tints and high lights. For transparencies and lantern-slides it surpasses any of the mixed developers heretofore offered. Price, per 8-ounce bottle, 35 cents.
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A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
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USE EIKONOGEN DEVELOPER. The finest for Aristo Negatives. The finest for Lantern-Slides.
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TO RENT—Wanted, an unfurnished first-class gallery in New York City, between 14th and 42d Streets, near Broadway. Address, QUICK,
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Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

Studio Changes.

Detroit, Mich. Handman & Fagin have sold out to Charles Sargeant.

Vineland, N. J. Banta & Wingfield have dissolved. J. C. Banta succeeds.

Independence, Oregon. W. H. Whiteker was burned out.

Cincinnati, O. Clendon H. Sheen. Artists' Supplies. Burned out. Loss reported to be heavy, but covered by insurance.

Business Notices.

WANTED—Solar Camera. Must be in good condition and cheap. FRANK CRAYTON,
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FOR SALE—No. 4 Folding Kodak entirely new, seal never broken. Will sell for $39. Address
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RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO , Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
BUCHANAN, BROMLEY & CO., Philadelphia.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BARGAINS IN BACKGROUNDS.
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
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Address, MRS. HARRIET E. NORTH,
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PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA.

Para-amidophenol hydrochlorate	2 drachms
Granulated carbonate of sodium	10 drachms
Granulated sulphite of sodium	10 drachms
Water	32 fluid ounces

Heat the water to 150 deg. F.; dissolve first the sulphite of sodium, then the para-amidophenol, and finally the carbonate of sodium; filter, and keep in well-stoppered bottles. With ordinary caution this solution will keep indefinitely.

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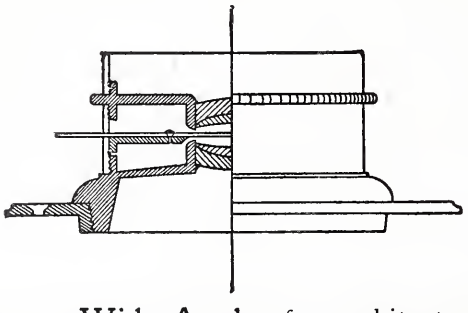
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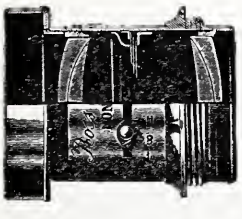
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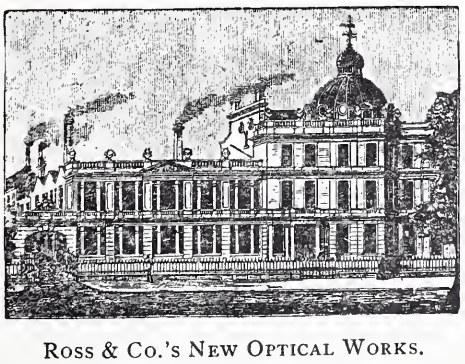
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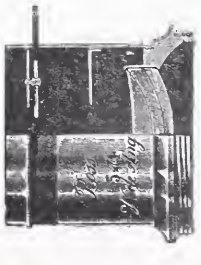
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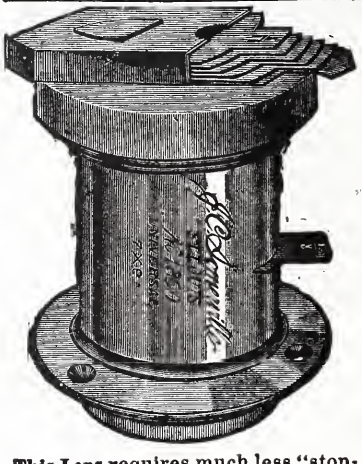
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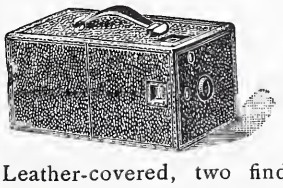
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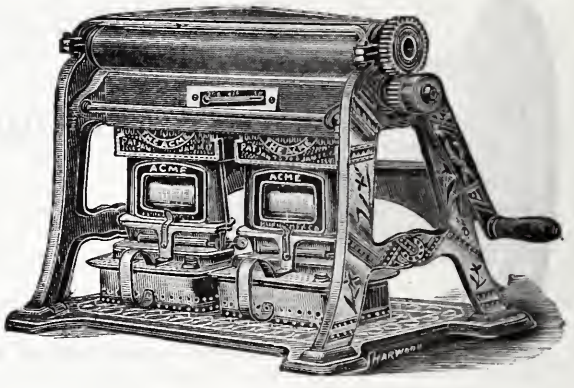
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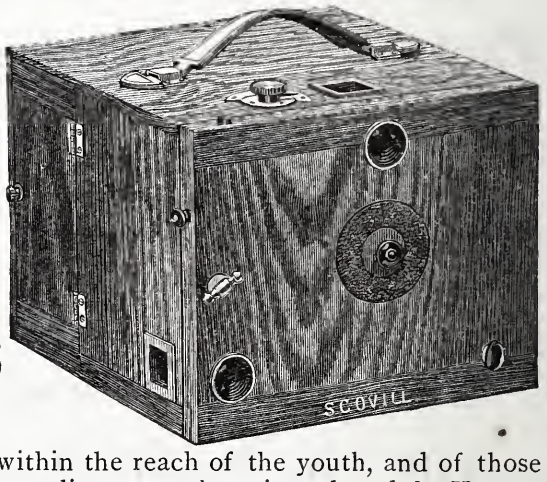
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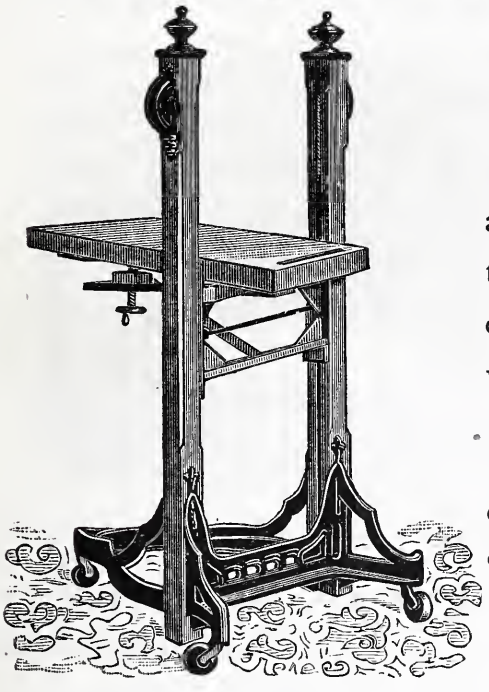
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No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

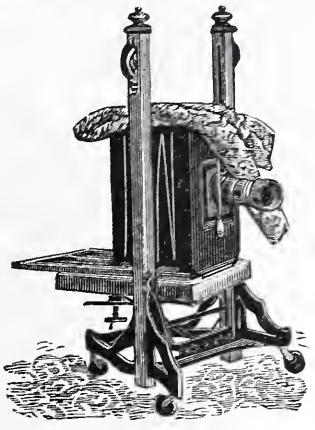
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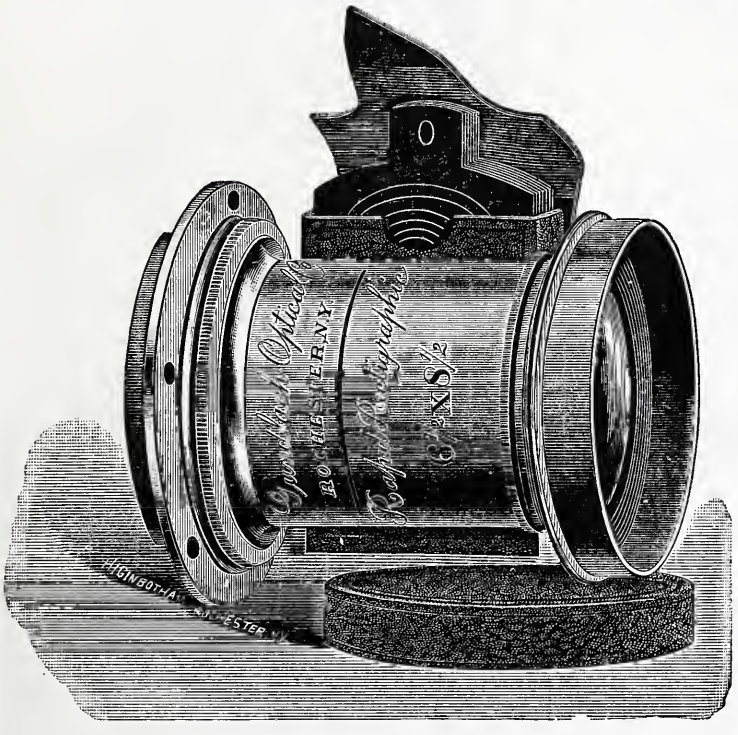
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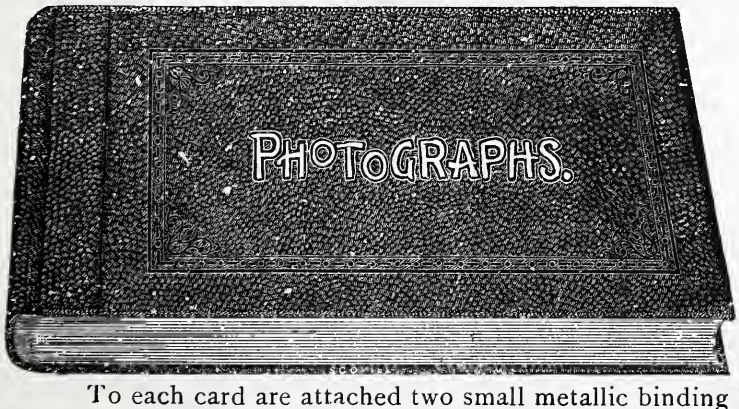
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No. 1. — 6x 7 Cards,	for 4 x 5	Photographs,	.....	$1 25
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" 3. —10x12 "	" 6½x 8½	"	.....	2 25
" 4. —11x14 "	" 8 x10	"	.....	2 50

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Morocco, Half Leather, Extra Gold Finish, with A. M. Collins Mfg. Co's Cards. Boxed.

				With 25 Collins Cards.		With 50 Collins Cards.
No. 5.— 7x10 Cards,	for 5 x8	Photo's		$2 00	No. 11.—	$3 50
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" 8.—11x14 "	" 8x10	"		3 50	" 14.—	5 50
" 9.—14x17 "	" 10x12 or 11x14			5 50	" 15.—	9 00
" 10.—16x20 "	" 11x14 or 14x17			7 75	" 16.—	11 00

To each card are attached two small metallic binding loops, so fastened that they act like hinges; through the projection of these loops a binding cord passes, which fastens at the back with a tie; thus each card is bound in the cover independently, and may be taken out and returned or replaced with ease. This method of making an album affords the amateur the best means of preserving the results of his labor, because each picture may be finished before putting the card in the album. The arrangement of the pictures may also be altered at will—if a single card is spoiled the whole album is not ruined. If a picture is taken out, it can be quickly and readily done without injury to the volume.

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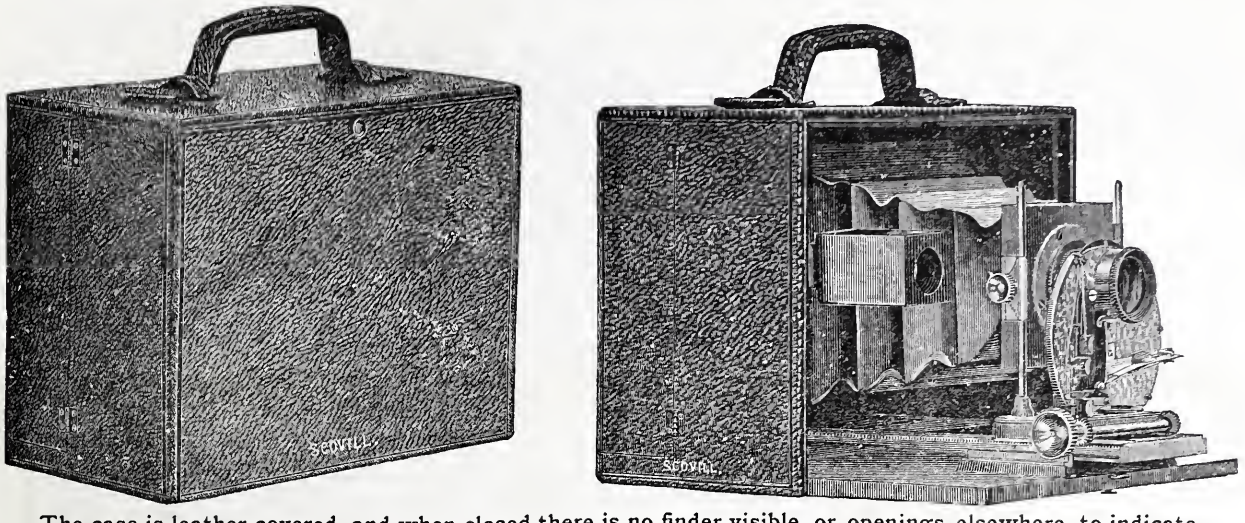
No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...	3¼x4¼ inch...	2½ inch...	each, $20.00	
2..1	" ...	4 x 5 " ...	3½ " ...	" 25.00	
3..1	" ...	4¼x 6½ " ...	4½ " ...	" 25.00	These 5 sizes will
4..1	" ...	5 x 8 " ...	5½ " ...	" 25.00	fit into 1 flange.
5..1	" ...	6½x 8½ " ...	6½ " ...	" 25.00	
6..1	" ...	8 x10 " ...	8 " ...	" 30.00	
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10..1½	" ...	20x24 " ...	22 " ...	" 80.00	fit into 1 flange.
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☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

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THIS IS THE ONLY DOUBLE SHIFTING AND SWING-FRONT HAND CAMERA.



The case is leather-covered, and when closed there is no finder visible, or openings elsewhere, to indicate that the Camera mechanism is concealed inside.

To open the Camera press on the knob, visible on the front, thus allowing the front to slide, and then swing under the bottom of the Camera. The platform or bed of the Camera is carried with this board, and, by turning the wheel, the bed is made perfectly rigid. It will at once be apparent how the front may be racked outward until the front end of it is over the lines which indicate the focus for various distances. The figure 60 on the focusing scale indicates the focus for 60 feet or beyond. The finder of the Camera is now placed on the top of the front board, and is therefore always at the same angle as the lens: the finder is a reversible one, which may be turned when the Camera is fastened to a tripod, or is held, not with the handle upward, but with the handle on the side in order to secure a vertical instead of a horizontal view. The front board is arranged to slide upward when taking a tall building, church spire, or any high object, and it is also arranged to swing, to still further aid in that endeavor.

By an ingenious arrangement the swing and vertical sliding adjustments may be made to work when the camera is turned over and used horizontally.

One of the advantages of this Camera, when used in the hand, is in the taking of street scenes from an elevated position and having the lines of the building straight while the subjects taken may be near by.

On the same principle, objects situated above the Camera level may be taken by reversing the position of lens and finder.

PRICE.

5 x 7 Henry Clay Camera complete, with Instantaneous Lens and Shutter.....	$50 00
Ditto, with Roll Holder and one Double Plate or Film Holder.....	65 00

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SOMETHING NEW UNDER THE SKYLIGHT.
SCENES CHANGED IN HALF A MINUTE.

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100 sold in August

HOW IT OPERATES:

A few turns of the upper crank rolls up the scene; the other one lowers it to its brackets.

Now the sliding roller supports are brought opposite another roll which is drawn into them, elevated and unrolled.

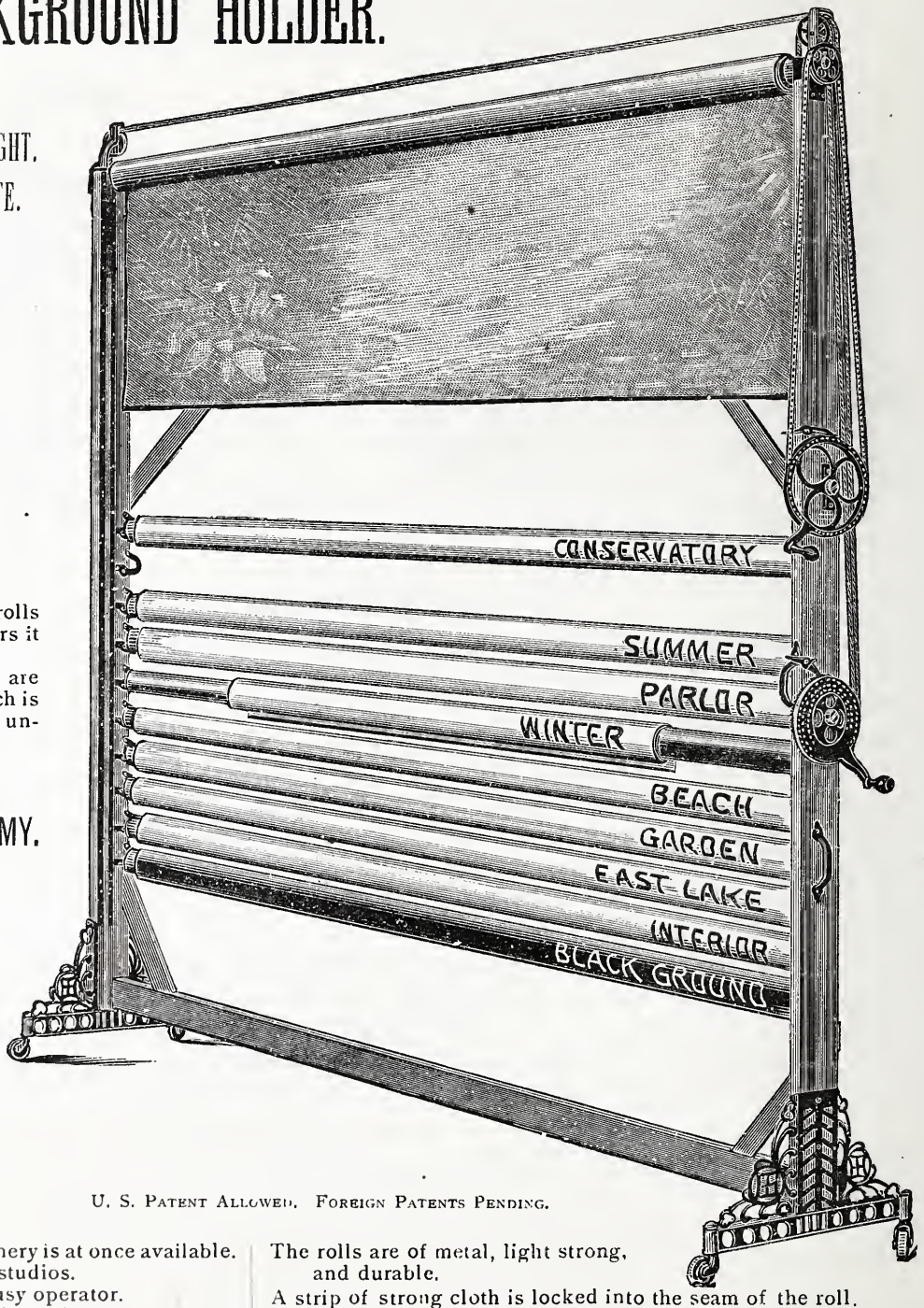
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With this holder every piece of scenery is at once available.
It is a positive necessity for small studios.
It saves a sight of trouble to the busy operator.
It takes no more room than an ordinary frame.
You can raise or lower the ground to suit your subject.
It will roll the combination background and foreground.
You can lower your ground even with the carpet.
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It will roll all of your old backgrounds.
It preserves your scenery against scratching.
It is just the thing for felt bust grounds.
Grounds cannot unroll in brackets, nor while being elevated
The weight being below the centre, it is not top-heavy.
Many of the castings are of malleable iron and can not break.
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A strip of strong cloth is locked into the seam of the roll.
The background is attached to this cloth by brass fasteners.
It takes but a few minutes to properly hang your scenery.
It is impossible for the roll to fall from the machine.
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The joints are halved and put together with screws.
Frame of whitewood, finely finished in cherry.
The mechanical construction is very simple.
There is nothing about it liable to get out of order.
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The castings are double japanned.
Weight, boxed, ready for shipment, 125 pounds.
Securely packed in the knock-down.

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(LONDON, ENGLAND)

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The reputation of these Lenses abroad is superior to that of any other make. They have been selected by the following named institutions because of their unequaled qualities and excellence.

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The SWIFT LENSES have been awarded no less than seven gold medals, besides numerous diplomas of honor.

They are manufactured from the new Abbe-Schott glass, which is undoubtedly more uniform in quality and specific gravity than the best optical flint and crown glass heretofore made; hence the lenses are of a uniformly superior quality.

The Rapid and Portable Paragon Lenses

Are supplied with Iris Diaphragms and mounted in brass as well as aluminum; while the Wide-Angle Paragon Lenses are fitted Revolving Diaphragms.

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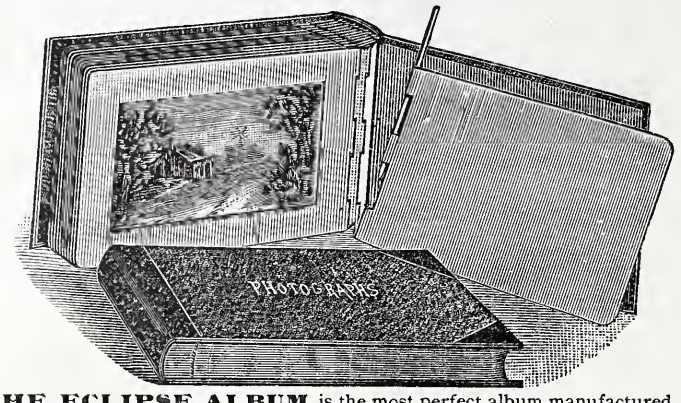
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The leaves of the Eclipse Album are fastened by means of a small rod or "pintle," as will be seen by the above cut. At the back of the album, in the inside, is a slot or cut expressly made, by means of which you can readily grip and remove the pintle. The pintle thus removed will give you an instrument with which you can remove the others. A pin or hairpin also answers admirably.

Place the flat or upper end against the flat end in the leaf, and press it out, thereby removing both the leaf and the pintle.

Each picture may then be finished and mounted on the card and **burnished** before putting the card in the album.

Photographs should under no circumstances be mounted with the ordinary photographer's paste or the many scented "paste preparations" sold by dealers generally.

We confidently recommend **"Non-Cockle"** as being the best preparation manufactured for mounting purposes.

In mounting the pictures it is **very important** to have them **dry thoroughly between blotting paper, under pressure.**

The Eclipse Album, as a **sample book,** especially for mounting samples of fine stationery, satins, delicate laces, etc., is pronounced by the best judges as having no equal.

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No. 3½	12 x 10 —upright	$4 25	
" 4	11 x 14	4 25	
" 4½	14 x 11½—upright	6 25	
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The Eclipse Albums are handsomely finished in **Morocco, half leather bound,** with gilt title, and enclosed in a neat box.

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	WHITE AND GRAY.	BEST QUALITY.	1 DOZEN IN A BOX	
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" 4½				
" 5	14 x 17			1 75

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No. 1 ACME SCIOPTICON,
Complete with Double Slide Carrier,
$30.
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$50.



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The No. 1 ACME SCIOPTICON when packed for carrying, in its own Russia iron case, measures 15 x 10 x 6 inches, and weighs 12 pounds; the case serving as a convenient stand when the lantern is in use.

The CASE and BODY of the Lantern are of Russia iron, and neat and compact in form. That part of the body which surrounds the lamp is double, the outer cover being ornamentally perforated so as to allow a constant current of air to circulate and keep down the temperature.

The lamp is of the triple wick variety, and so constructed that the three flames combines and by the draught of a ten-inch chimney give a brilliant flame.

The CONDENSER is four inches in diameter, neatly mounted in brass, thoroughly ventilated, and arranged with screw flange so that the lenses may be separated and cleaned when required.

The CONE, which carries the objective, and the mount of that lens are nickel-plated. The objective is a double achromatic lens of one and a half inch clear aperture and five-inch focus, so that at a distance of twelve feet from the screen, it gives a brilliant picture on disc six feet in diameter. The focus is roughly obtained by sliding the front, carrying both cone and lens; and fine adjustment by a rack and pinion on the objective.

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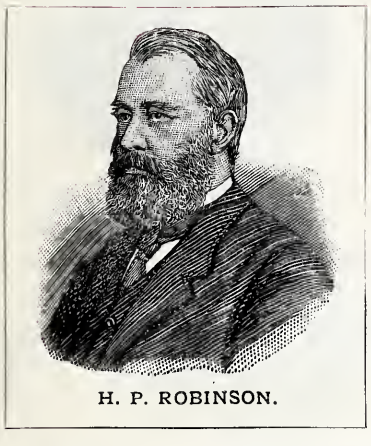
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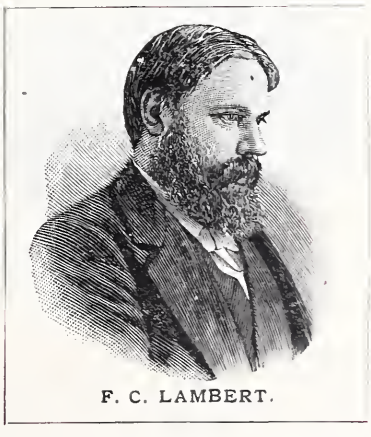
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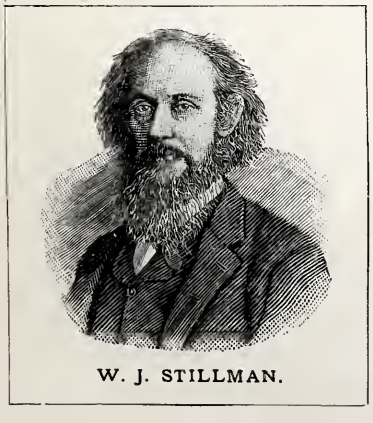
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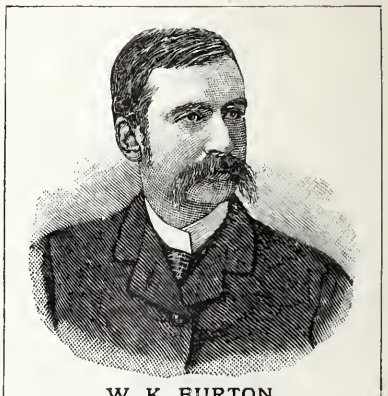
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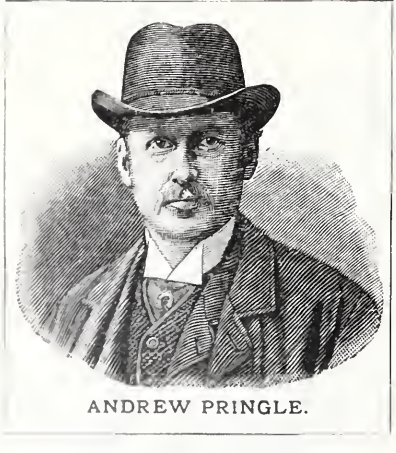
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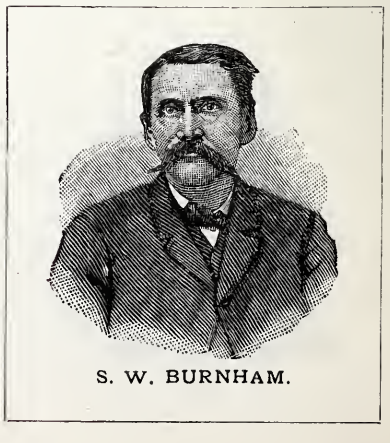
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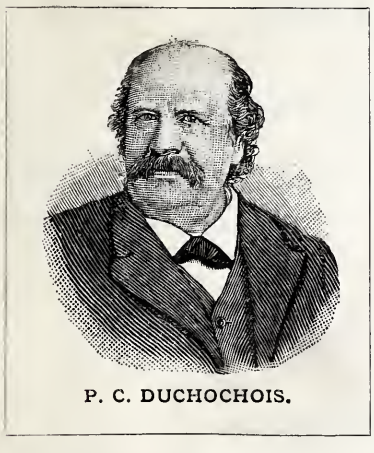
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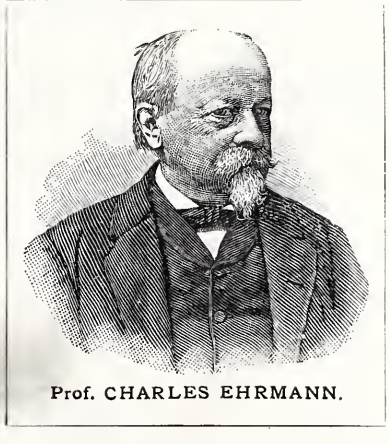


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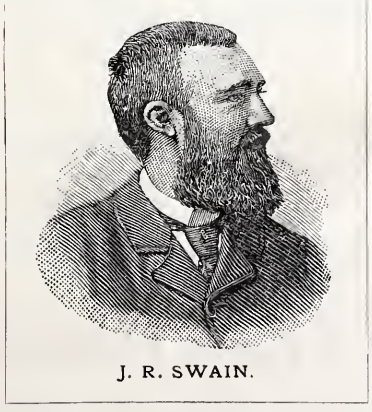


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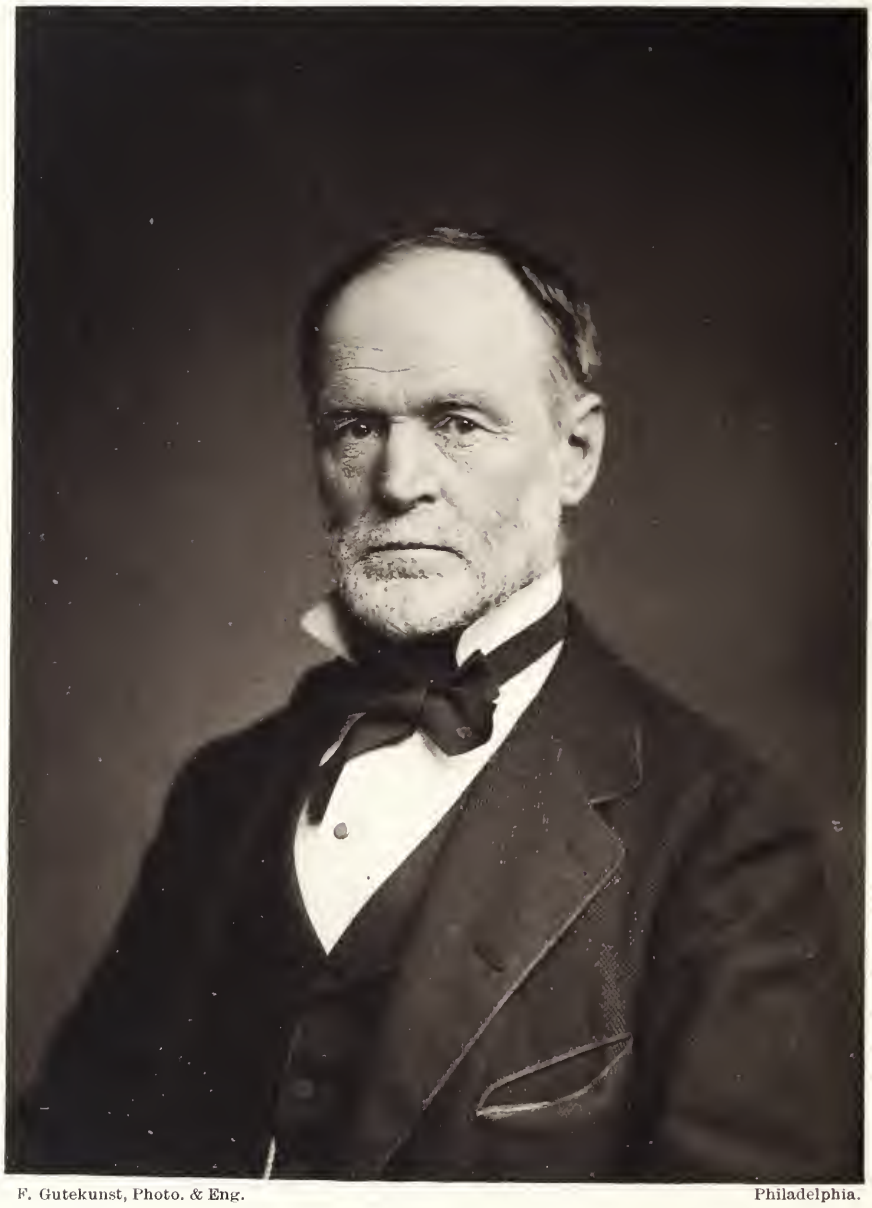
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GEN. W. T. SHERMAN.

THE PHOTOGRAPHIC TIMES.

VOL. XXI. FRIDAY, DECEMBER 25, 1891. No. 536.

GENERAL SHERMAN.

THE life-like portrait of General Sherman which we are permitted to give our readers this week will be especially appreciated by those who have become interested in his life through the memoirs which our publishers are offering in connection with this Magazine and the *Cosmopolitan*. The portrait was made by Mr. Gutekunst, of Philadelphia, and is certainly no exception to that high standard of excellence which he has maintained in his series of portraits of eminent Americans. The reproduction is also by Mr. Gutekunst, and is entirely satisfactory. General Sherman's life and character are too well known to require any treatment at our hands. We simply present the portrait of this honored, we might almost say, revered chieftain, sure of the cordial welcome which it will receive by all who see this magazine.

PARA-AMIDOPHENOL HYDROCHLORATE.

IT is rumored in western photographic circles that this new developing agent will hereafter not be sold in substance, but only in concentrated solution ready for use.

It is true that a party in Berlin, as we reported in these columns, prepares and sells a compound under the name of *Rodinal*, and which has found its way to this country, but that certainly does not exclude the use of the pure article. That developer is in reality nothing but a solution prepared after the formula No. 2, page 583 of this volume of THE PHOTOGRAPHIC TIMES

No one can prevent the sale of the pure article, and we think it better to obtain the article in its pure form. It can then be used after any formula.

The demand for para-amidophenol is constantly increasing; the quantity imported by the Scovill & Adams Company but a few weeks ago is nearly exhausted, and a much larger shipment of it is expected daily to arrive.

As the price of it decreases with increased demand, it is fair to presume that the importation will be retailed at a still further reduced rate.

OPINION OF AN EXPERIENCED AMATEUR ON PARA-AMIDOPHENOL AS A DEVELOPER FOR BROMIDE PAPER.

I MIXED UP some para-amidophenol, as per last formula in THE PHOTOGRAPHIC TIMES. It is water white and looks well. Not being able to try it on a plate on account of the weather, and not being quite fixed for lantern transparencies, I got impatient and tried it on bromide paper, and found it excellent. It is slower than ferrous oxalate, but I got a brilliant color. It works slow, clean and clear, with *good whites*, and gives any color from a pretty gray to a brilliant black; the half-tones are excellent. I believe it is the coming all-around developer.

Thos. J. Bray.

PARA-AMIDOPHENOL.—Mr. Carbutt writes in regard to para-amidophenol: "I recognize it as being closely akin to eikonogen in giving detail, and perhaps a little quicker in action. For quick emulsions to get density, I should either add hydrochinon to it or follow it with a restrained hydrochinon developer." Just before receiving this word from Mr. Carbutt, we had developed two instantaneously exposed negatives with para-amidophenol developer, and found on taking them from the hypo that they were *too intense*. To convert them into good printers we were obliged to resort to Farmer's reducing solution.

TO MOUNT BLUE PRINTS.

THE substitution of thin sheet-iron for mountings for blue prints is said to give much satisfaction in certain Eastern machine shops and manufacturing concerns. Besides lightness and cheapness,

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the practical indestructibility is a great advantage. The iron used is thin sheet, cold rolled, and has a very smooth surface. In preparing it for the print a coat of shellac varnish is first applied ; the blue print is then put on with a paste made of ordinary laundry starch, and after it is dry the face of the print is varnished with shellac.

(Ferrotype plates would answer the same purpose, are not expensive, and can be readily had at the supply stores.)

A SUCCESSFUL PHOTOGRAPHER.

THE valuable article by G. Watmough Webster, entitled "How I Develop," which we had the pleasure of presenting our readers in the CHRISTMAS NUMBER of the magazine, will make them interested to know something about the man and his work. Few photographers have been so successful. Mr. Webster succeeded as an artist and chemist before he became a photographer. This is probably the secret of his success in his present vocation.

G. Watmough Webster is an Englishman. He was educated in his native town, Warrington, and afterward became a student of the Liverpool College. The Principal of that school at the time, J. H. Howson, afterward became well-known to many Americans as the Dean of Chester Cathedral.

Mr. Webster was very successful as an art-student, gaining several medals, studentships, etc. He was a fellow-student with Luke Fields, R.A., Harry Woods, A.R.A., and Warrington Wood, the sculptor. His artistic training was considerably assisted by the counsels and guidance of his father, who was twice Mayor of his native town, and was an amateur painter of great ability and well-known also in literary circles.

In the study of chemistry Mr. Webster was particularly fortunate, having the personal friendship of the head of one of the largest chemical manufactories in Great Britain. He made a specialty of this study and was greatly assisted in his researches by his chemist friends. He had practically the full run of the great laboratories at Warrington, and was thus enabled to widen the scope of his knowledge by that combination of theory and practice which alone makes chemical knowledge of any real value. He was elected fellow of the Chemical Society about twenty-five years ago.

Mr. Webster has had his widely-known studio in the quaint old "Rows" of Chester for more than a score of years. Here he has been turning out photographs of the very highest order of merit. He has been especially successful in obtaining portraits of children which are at the same time perfect pictures as well as good likenesses. Being an artist and a chemist, he combines those qualities which go to make a successful photographer in the broadest and truest sense of the word.

We congratulate our readers on the completion of the arrangements which have been made by him and our publishers, which will give them frequent contributions from this successful photographer's pen during 1892.

EDITORIAL NOTES.

IT is stated on reliable authority that in the metropolis of Great Britain there are more electric lights than in five of our largest cities, including New York. A member of the French Society of Civil Engineers has lately read a paper on that much vexed question, the cost of the light, and has shown that the cost of the necessary power, which really ought to be the prime factor in the case, is by no means the most important condition. Thus, from London at .375 franc per electric "horse-power," to Fribourg, on the European Continent, at .15 franc, is a wide leap; and the explanation of the variation is the difference in the amount of capital required! As our readers are aware, some studios in London use the electric light alone as their illuminator, and many others as subsidiary to daylight. It is not difficult to account for the number of such installations in that particular city, seeing that the studio not so furnished may have to be run for days together at a dead loss, owing to the London fog—a murky, peculiar condition, not equalled anywhere in the world—which utterly suspends portraiture.

IN the *Chemical News* Mr. H. N. Warren has been showing the effect of the rays of limelight and of burning magnesium, passed through differently colored media, upon mixtures of chlorine and hydrogen, which gases were at one time recommended as measures for the actinic power of daylight. Red, green and yellow rays so retarded the action of the light so as to cause the explosion only after a few minutes' time. This is just the retardation that is produced upon the action of light on a dry-plate, and it is unfortunate that the experiments were not further protracted, and the effect of the violet and ultra-violet rays compared.

THE CHEMISTRY OF SILVER PRINTING.

(*Continued from page* 648.)

CHAPTER XII.

Intensification of Gelatine Negatives. II.—Intensifying without Mercury.

Wellington's Silver Intensifier for Gelatine Negatives.—In the *Photo. Almanac* for 1889 (p. 575), Mr. J. B. B. Wellington writes: "Silver intensification as used for wet (collodion) plates, namely, with nitrate of silver and pyro, is out of the question for the ordinary work of the photographer of the present day, as the hypo has to be thoroughly eliminated from the gelatine film by long-continued washing, and even after this has been done the nitrate of silver has often a persistent habit of staining the film red, and which occurs even in collodion plates."

"I can now carry on intensification without the silver being thrown out of solution, producing a negative of any intensity from the merest ghost of an image, and resembling in character any ordinary developed negative

Silver nitrate	100 grains
Distilled water	2 grains

Add to this 240 grains of sulphocyanide of ammonium; a precipitate is formed which is again dissolved. On diluting this to ten ounces with water another precipitate is thrown out. Now dissolve this precipitate by adding hyposulphite of soda to the solution. This constitutes the stock solution.

To intensify take—

Stock solution	1 ounce

And add—

Pyro	3 grains
Sulphite of soda	12 grains
Ammonia	6 minims
Ammonium bromide	2 grains

From five to ten minutes will produce a dense negative from a very thin one without staining in the slightest degree. More ammonia may be added from time to time if not sufficiently energetic. For wet-plates, collodio-bromide, and gelatine, it cannot be surpassed at present.

Intensifying with Uranium (*Selle*).—In the *Bulletin Belge de la Photographie*, for 1865,* M. Hermann Selle showed him to intensify collodion negatives with a mixture of sulphate of uranium and cyanide of potassium and iron; and in 1866 Duncan substituted the nitrate of uranium for the sulphate. Lastly, in his classical book on "Modern Dry-Plates" (1881), Eder showed how useful the method was for gelatine negatives.

Make up the following solution:

Uranium nitrate	20 grains
Potassium ferridcyanide	25 grains
Distilled water	7 ounces

This solution should be perfectly clear. The negative must be soaked in it until it is of a browish-red color; and then *well* washed.

The uranium and potassium salts combine to form uranium ferricyanide, and this last-named substance combines with the silver (of the image) to produce ferrocyanides of silver and uranium. The uranium ferrocyanide being naturally of a dark-brown color, it is not necessary to use any blackening agent such as is needed in intensifying with lead. Otherwise, the chemical changes which take place are similar, and may be expressed by similar equations.

Intensifying with Lead (*Eder & Toth*).—In the year 1876, two Austrian investigators—Professor J. M. Eder and Captain V. Toth—published* a method of intensifying collodian negatives with lead; the method is also applicable to gelatine negatives.

In the first place it is necessary to prepare ferricyanide of lead, by mixing together the following substances:

Nitrate of lead	4 parts
Red prussiate of potash	6 parts
Distilled water	100 parts

A chemical change takes place, resulting in the formation of ferricyanide of lead:

$$3Pb(NO_3)_2 + K_6Fe_2(CN)_{12} = Pb_3Fe_2(CN)_{12} + 7KNO_3$$

Lead Nitrate *and* Red Prussiate of Potash *produce* Lead Ferricyanide *and* Potassium Nitrate.

Filter the mixture and immerse in it the negative to be intensified. The time required to produce the necessary density is much longer if the negative has been previously dried; it may then take hours. In this case the silver (of the image) combines with the lead ferricyanide to form the ferrocyanides of lead and of silver.

$$2Ag_2 + 2Pb_3Fe_2(CN)_{12} = Ag_4Fe(CN)_6 + 3Pb_2Fe(CN)_6$$

Silver *and* Lead Ferricyanide *produce* Silver Ferrocyanide *and* Lead Ferrocyanide.

These ferrocyanides are white. To blacken them (thereby increasing their opacity) the plate must be *well washed*, and then immersed in sulphide of ammonium diluted with five times its volume of water.

* Translated in *Photographic News*, 1865, pp. 366, 498; and 1866, pp. 169, 202.

* *Photographic News*, pp. 100, 573, 579, 593. 608.

The white ferrocyanides are thereby converted into the dark *sulphides* of lead and of silver.

This method gives three times greater density than that obtained by the use of mercury and ammonia. It is seldom used at the present day except for "line" work.

Intensification by Permanganate of Potash.—Dissolve quarter-of-an-ounce of the permanganate of in eight ounces of water. When any negative which has been developed, fixed, and washed in the ordinary way is immersed in this solution its color is changed to brown. In some cases this treatment alone will give sufficient density, and the negative need then be only washed and dried.

If more density be required, wash the negative, and place it in the ordinary ferrous oxalate developer, when the color will change to black.

$$K_2Mn_2O_8 + 4Ag_2 = 4Ag_2O +$$

Permanganate of Potash *and* Silver *produce* Silver Oxide *and*

$$Mn_2O_3 + K_2O$$

Oxide of Manganese *and* Potassium Oxide.

The first or brown image consists of a mixture silver and manganese oxide.

The ferrous oxalate developer reduces the silver oxide to black metallic silver, which is more opaque than the silver oxide.

This permanganate intensifier was used for collodion wet plates as long ago as 1868, by Mr. Wharton Simpson. In 1890 it was recommended by M. A. Gendrand, in *Le Progrés Photographique*, for gelatine plates. It is better suited for reproductions of engravings, etc., than for ordinary negatives, as its effect is to give very strong contrasts.

Intensifying with Aniline Dyes.—In 1890, Dr. R. E. Liesegang recommended* the varnished negative to be coated with collodion or varnish in which a little of any red or green aniline dye had been dissolved. Such colors, it is well known, are bleached by exposure to light. The *back* or glass side of the negative is then exposed to sunlight, which acts *through* the film upon the dye, decolorizing the latter in proportion to the opacity of the different parts of the image.

The negative is then printed from in the usual way; but the intensifying operations will have to be repeated if many prints are made.

Intensification by the Powder Process.—By this method no chemical change is produced in the image; with which, indeed, the materials employed do not—or need not—come in contact. The back, or glass side of the negative is coated with the following mixture:

Albumen	70 minims
Ammonium bichromate (sat. sol.)	150 minims
Honey	90 grains
Water	10 ounces

This mixture is not sensitive while wet; but after drying (in a hot oven) it is much more sensitive than ordinary sensitized paper.

The coated negative is then exposed (the *film* side being towards the sky) for about half a minute to diffused sunlight. Both the exposure and the subsequent printing are best done at the bottom of a deep box just fitting the negative, and placed so that only parallel rays can fall upon the negative.

After exposure, the coated side of the negative is dusted over (in the dark-room) with powdered blacklead applied by means of a brush. This adheres to the coating in exact proportion to the action of the light upon the said acting. Thus a *second* negative is produced behind the first or original negative; and the prints given by the *double* negative are, of course, more "intense" than those from the original film.

By regulating the length of the exposure to sunlight, either the whole, or only the high-lights of the original negative can be intensified.

The powder process was the invention of, or rather was perfected by J. Obernetter, of Munich, in 1874.*

Local Intensification.—It is often desirable to intensify a negative *in part only*. It is then best to soak the negative (if it has been dried) in water for half-an-hour. Remove the negative and blot off the surface water with a clean towel. Then paint the intensifier by the aid of a small soft brush upon the parts which it is desired to intensify. Wash the negative and complete the operation as usual.

Another plan is to paint with machine oil upon those parts of the negative which do *not* need intensifying; and then to proceed as usual. But there is some difficulty, after the intensification is completed, in removing the oil. It may be cleaned off, however, by ether, or by a little weak soda.

In the "Photo. Almanac" for 1889 (p. 402), G. W. Valentine recommends a mixture of Judson's yellow or orange dyes with half-an-ounce of gum senegal, applied thinly by means of a camel-hair brush, moistened with the tongue, to those parts of the negative which require intensification.

MAXIMS FOR INTENSIFICATION.

1. In most intensifying processs the negatives must be thoroughly *fixed* and thoroughly *washed* before intensification is attempted. Sometimes in-

* In the *Photographisches Archiv.*

* *Photographic News* for 1874, pp, 147, 214, 344.

tensification may *precede* fixing; and in one intensifying process (Edward's) the removal of the hypo is of no importance. In all other cases any default in fixing or in washing will result either in immediate failure, or in the appearance of spots or stains upon the film after a short time.

2. The intensifying solutions must be kept in constant *motion* (by rocking the dish) while upon the negative. If this is not done it is probable that they will act *unequally* upon the image.

3. If a negative shows the least sign of *fog* it is better to slightly *reduce* it (see Chapter on "Reducers") before attempting intensification. If it is *much* fogged, it is useless to attempt intensification at all. Really successful intensification is only possible with negatives which, though thin, are quite clear in the shadows, and full of detail.

4. Remember that intensification is only a makeshift. It will generally be found better, easier—and probably cheaper—to take another negative (when possible) rather than to intensify a defective one.

5. In choosing a method of intensification, remember that it must suit the negative. Some negatives require but a little, others a great deal of intensification. Choose your process accordingly.

6. Remember that all intensifiers have their good and their bad points. Silver intensifiers alone do not discolor the negative; but silver nitrate stains the fingers.

Mercurial salts followed by baths of potassium cyanide or iodide, and silver nitrate, etc., give permanent results; but they involve the use of very poisonous substances.

Mercury followed by ammonia is the simplest and most used method, but great care must be taken, or the results are not permanent.

7. Any stain upon the surface—such as the iridescent stains commonly seen on negatives which have been printed from while unvarnished—will give red spots when intensification is attempted. Such stain may often be removed by gentle friction with a very dilute solution (5 grains to the ounce) of cyanide of potassium, followed by a good washing.

8. If the negative to be intensified has been varnished, the varnish must be removed by soaking the negative in warm methylated spirit. It should then be washed in water, and its surface rubbed with pad of cotton-wool.

Or if collodion has been used—(instead of varnish) to protect the gelatine film, this substance can be removed by soaking the negative in a mixture of alcohol two parts, with ether one part.

9. The various methods for intensification may be arranged with three classes:

I. The piling up of more silver upon the original silver image.

II. The *addition* of some other metal to the silver.

III. The *substitution* of some other metal—as gold or platinum—to the silver.

10. Mercury bichloride is only slightly soluble in water; but much more soluble in water containing ammonium chloride. A speedy way of removing the bichloride is therefore to soak the negative (after rinsing well under the tap) for ten minutes in—

Ammonium chloride..... 1 ounce
Water.....10 ounces

Then rinse and wash in running water for twenty minutes.

11. Remember that if the values or gradations of the negative are to be preserved, the intensifying solutions must each be allowed time to produce their full effect; that is, they must act right through the film at every point. By arresting the intensification at an earlier stage, the contrasts must be decreased; because the solutions will have penetrated completely through the detail in the shadows, while in the high-lights their work may be less than half done.

W. Jerome Harrison.

PICTORIAL RECORDS.

In spite of Marie Bashkirtseff, the keeping of regularly written diaries has gone out of vogue in these ultra-matter-of-fact days. We are not given to the self-centred modes of thought that one hundred and twenty-five years ago saw their culmination in the egoism and self-analysis of Rousseau. But although this is so, there are nevertheless few of us who do not, as we grow older, enjoy looking over some few brief reminders of both happy and sad days in our past life-experience.

Memoranda, letters, even brief summarized diaries, are in these reminiscent moods found welcome; but perhaps more than any merely human writing do we enjoy turning to those wonderful transcripts of the past written by the agency of that etherial messenger—light, by means of lens and camera.

Who does not treasure these wonderful records of loved faces, and of places that perhaps we can see no more?

The grown-up ones we formerly knew as chil-

dren grow young once more as we muse over the old photographs of them, and friends now gone step out from the cardboard and live once more. The old flowers bloom again, and long-faded sunlight flickers once more upon leaves of trees that thus pictorially, though not actually, have defied decay and the woodman's axe, and are yet green despite of time. So do we live over once more "the joyous days gone by."

And if we have not thus found the wonderful fountain of eternal youth that drew Ponce de Leon on to undergo so many hardships and that has, in the old days, set so many to dreaming of a perpetual springtime of life, we have at last found a partial substitute for it in that wonder-working though humble solution which has given cause for so much talking and experimenting—in the developing bath. And the pictorial memoranda that this wonderful solution gives us, fixing indelibly earth's fleeting beauties, are things to be indeed carefully guarded from the destroying touch of jealous Time.

The houses in which we have lived and loved; the rooms in which we have dreamed and laughed and wept; and the loved ones whose lives are interwoven with ours—what are written words concerning these beside the delicate though indelible writings of that fairy, Light.

And as to places—this is the only way to preserve a good record of where we have gone and what we have seen. These are the only memorials sure to interest not only us, but others; and especially the children growing up around us. Such things are as a mine of wealth to the young ones, and many of childhood's happy days may be spent looking over such photographs.

And if children find so interesting the records of what their elders have seen and done, what is not their enjoyment, as they grow older, to have photographs of their younger selves and their doings. And when they do grow up, what invaluable records of childhood's golden days these are for them.

Surely it should ever be the duty, as well as pleasure, of those of us who have cameras to take such photographs for our children or younger brothers and sisters—memorials which they are yet too young and inexperienced to make for themselves.

The text that inspired this discourse is hardly one that can be expressed here in words. It is one of light's writing and lies before me now—a picture of a room in the old home, as it used to be long ago, and, standing proudly up in the center, glorious in its toys and tinsel, is a large Christmas tree—one of those I had helped to deck in the old days.

For myself, I do not indulge in actual Christmas trees now, but that old pictured Christmas tree stands, as green a record and as happy a memorial as I can imagine.

From the foregoing all may readily guess the present practical application of my idea, for Christmas is coming to bring joy to the hearts of children of from four to fourscore years, and if we can fix a little part of the joy in gold and silver salts by use of the camera, our hearts' store will be a little the richer in future for our photographic memorials.

It would be a good idea for all who are happy in having children around and in having Christmas trees for them, to make yearly photographic records of these happiest of days, that they may live the brighter in memory.

And what prettier photograph could we wish than a happy group of children, laden with toys, with the older folks and the glittering Christmas tree in the background.

Nor is this result so difficult to obtain in these days of fast plates and of flash-light photography; while on the other hand, what little difficulty there is should add zest to this additional means of Christmas enjoyment.

Dallett Fuguet.

REVERSAL.

[Abstract of a paper read at the London Camera Club.]

IN opening the subject of reversal, it would be well to understand that a reversal negative and a reversed negative are different things, a reversal negative being the result of what has been termed reversing action; it is produced direct from a negative, and is reversed as regards right and left. A reversed negative is reversed as regards right and left, but it is produced from a positive.

We all know that over-exposure produces flatness, owing to the difficulty of obtaining density in the high-lights; it is easy to conceive an exposure sufficiently prolonged as to cause an entire loss of the high-lights. If in such an exposure the shadows have not received sufficient light to produce a strongly developable image, the result on fixing would be an extreme case of over-exposure, as understood by a thin image; but if during development stray light obtains access to the plate, the shadows fog, and we have reversal.

The original high-lights, as we shall see, are both undevelopable and insensitive, therefore do not fog. We may produce this fog by preliminary,

concurrent, or supplemental exposure; in all my experiments it is deliberately produced in order to supply the necessary reduction to those parts of the plate not rendered undevelopable by oxidation. In a reversal exposure this oxidation is regulated by the interposed negative or positive; therefore, when we fog or expose the still sensitive portions of the plate, a reduced image is formed capable of being developed.

In our experiments, the reduction will be produced by concurrent exposure; that is, while we are oxidizing through the shadows of the interposed negative, we are fogging or reducing through the high-lights with stray light. In order to illustrate this matter, I will expose a plate to magnesium light a sufficient time to enable oxidation to produce the undevelopable and insensitive state; another plate will be taken, and the pair exposed in contact with a negative. I think we shall find one plate give a reversal, and the other show it is really undevelopable and insensitive. The insensitive or oxidized plate will show the state of the shadows in the reversal plate, this latter having a gradation of oxidation and the rest of the plate fogged. The insensitiveness may be only comparative, for, though the plate has still the power of producing a print-out image, I have not succeeded in producing a second developed reversal from it. Captain Abney has shown that the undevelopable state is due to oxidation.

Although it is possible to produce an exact reversal, I do not think these physical reversals are of much practical account, from the fact that a very exact balance in the two factors of reduction and oxidation is necessary; if the latter be in the least overdone, the delicate tones are oxidized out of existence, or, if the reduction has been too much, delicate tones are fogged and disappear; under these conditions the gradations are quite false. In some cases reversal improves the result; subjects having too many tones may have the middle tones obliterated. Hard negatives are reproduced perfectly.

When making experiments of this kind, the natural conclusion one arrives at is, that dark flashes seen on photographs of lightning are the result of reversal. The light from 1 grain of burning magnesium is sufficient to produce reversal. So we may consider a lightning flash having a similar actinic or photographic value should do the same. This value may be due to a discharge of exceptional duration, or to a brilliant flash caused by a maximum electromotive force with a minimum quantity of matter in the path of the flash.

One evening I was observing a display of electric discharges in a large cloud situated on the northern horizon; these discharges were accompanied by sympathetic discharges in a cloud on the southern horizon. The northern cloud was approaching, and I concluded that, should the clouds be at different altitudes, a difference of air currents might enable the one to overtake the other. A more rapid movement of the northern cloud was soon noticed; a camera was fixed up and carefully focused on the southern cloud, by aid of the local discharges. All being in readiness, and the shutter of slide drawn, but cap still on the lens, I waited events. When the northern cloud reached the zenith it began to show considerable symptoms of electric excitement at the edges; knowing this to be my opportunity, the lens was uncapped, and in about half a minute a pair of brilliant flashes darted from the zenith to the southern cloud. I estimated the duration at over one second.

The plate was immediately developed, but not a sign of the flashes. I expected to find a pair of curly black streaks right across the plate; instead, there appeared a very fair cloud negative, and the black outlines of some buildings low down in the field; these buildings enabled me to verify the position of the camera, which, being attended to, proved the field must have included the flashes. I could never account for getting the clouds and not the flashes, until the matter came to mind whilst making the reversal experiments, and now think the exposure reached the transition stage described in Experiment 14, of my paper in the Club *Journal* for September.

There may be points which, with our present limited knowledge of the dark flash, seem difficult to reconcile; still, I think we are pretty safe in accepting reversal as the cause.

Henry Sutton.

Correspondence.

THE PLATINOTYPE.

To the Editor of The Photographic Times:

Dear Sir: My attention has been called to an article in the *American Journal of Photography*, wherein it is suggested that the term of the Platinotype Patents had expired.

The article is misleading, and, with your permission, I would be glad to state the following for the benefit of any one who may have been misled by the article in question.

The first patent recorded in the United States for a process of producing pictures in the metal platinum was granted Willis, in 1876. This process, as every one familiar with it knows, was a very complex affair, necessitating the use of silver, gold, and hypo, before the picture was considered finished. Many beautiful results were

got by this process, but the working of it was not always attended with success. It was the beginning of "The Platinotype."

The patent which followed—1879—was a great advance, but, as neither of the three principal salts, ferric oxalate, oxalate potash, potassic chloroplatinite, used in or about the process were in the market, it was a tremendous labor to discover the best method of manufacturing these salts. Moreover, we soon found that none of the photographic papers in the market could be used for platinotype and a paper had to be invented for our use.

Our last patent was granted in March, 1890. This patent fully covers the application of a solution of ferric oxalate, or its compounds to paper or other surfaces, exposing this prepared paper to the action of light and developing the exposed image to a metallic platinum picture. I have no knowledge of any patented process or processes for prints in platinum other than those of Willis.

The metod, as published by Pizzighelli, was discovered by Willis fully fourteen years ago, and laid aside as being imperfect. A "printing-out" process in platinum had long been in the mind of Willis, and hundreds of experiments have been made by him in that direction, but, the many difficulties in the way will make it almost impossible to ever get a perfect process of this kind.

Our patents are original. There are no similar patents in any country in the world. It would, therefore, be not difficult to establish our claims.

Respectfully,

Alfred Clements.

PHILADELPHIA, December 9, 1891.

AN OPEN LETTER TO MR. NEWTON.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Mr. Henry J. Newton, in his paper, "Toning Without Gold," page 44 of the "American Annual of Photography and Photographic Times Almanac" for 1892, recommends nitrate of lead instead of chloride of gold as a toning agent, and states when speaking of the fading of silver prints on albumen paper that in his opinion "the main cause of the trouble resides in the action of the silver on albumen." Then he proceeds by saying: "By some it is claimed that there is a combination of silver and albumen forming what has been termed albumenate of silver. I have never seen an analysis of such a compound and do not believe that such exists. The fact that silver coagulates albumen is no reason for supposing that there is a combination"

If I well understand Mr. Newton, he does not admit that nitrate of silver forms a compound with egg-albumen, and advises us to discard gold, which the most authorized writers on photography tell us to be the best protection against the atmospheric influences which give rise to fading, for lead in the toning process.

Now, Mr. Editor, there are in this many things I do not understand at all: the non-existence of the albumenate of silver, the toning with lead, the fixing and toning in one operation. And, as I am much interested in the chemistry of photography, I would be much obliged to Mr. Newton to explain through your valuable journal the action of nitrate of silver on albumen, how it causes fading, and what is the theory of the lead-alum toning process without washing out the nitrate of silver from the prints Is lead deposited on the silver? What is the chemical equation? Is sulfuration avoided? How?

Yours respectfully,

Wm. X.

N. Y. CITY.

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In my article on "Preparing Strong Ferrous Oxalate," which was printed on page 607 of December 4th issue of THE PHOTOGRAPHIC TIMES, I find one or two errors which I wish to have corrected. On page 608, twelfth line from the top, read "Aid of," instead of "acid;" and in the twelfth line from the end of the article read 750 C.c. instead of 760, and on the line below, 690 instead of 680.

Very truly yours,

C. W. Miller.

MEDIA, Pa.

Notes and News.

Happy New Year!

Have you renewed for 1892?

Read THE PHOTOGRAPHIC TIMES Illustrated Prospectus for 1892.

The California Camera Club held a housewarming and "Hyjonekin," at its rooms in the Academy of Sciences, San Francisco, Tuesday evening, December 15th.

The Ladies of the Toledo Camera Club give a New Year's Reception at the club rooms January 1st. A good idea. We should like to see ladies of other clubs follow the example.

"The Fair City of Florence" was the subject of an illustrated lecture by the Rev. Charles R. Treat, delivered at the rooms of the New York Camera Club, Monday evening, December 21st.

"A Smoking Concert" will be given at the club rooms of the Society of Amateur Photographers of New York Saturday evening, January 9th. An excellent programme, cousisting of lantern-slides, music, recitations, etc., is promised, also a collation. Tickets, $1.00.

At the Lantern-Slide Exhibition held by the Society of Amateur Photographers of New York, Friday evening, December 18th, many interesting pictures were shown on the screen from Mr. Cornelius Van Brunt's negatives illustrating his lecture on the Catskills. A few slides were also projected from Miss Clarkson's negatives, the last one being the subject which forms the frontispiece to the Christmas number of THE PHOTOGRAPHIC TIMES.

A cablegram received from the Leeds International Photographic Exhibition states that Clarance B. Moore of Philadelphia has received the bronze medal in Class V., which is the only American award. Class V. is portraiture by amateurs on 6½ x 8½ plates or larger.

The Maddox Fund is growing apace in England. Andrew Pringle, the Honorary Secretary, writes under date of December 3d, that over £200 (about $1,000) has already been raised. "And I know of more coming," he adds. "In some cases societies have voted sums as societies, and in other cases as separate individuals."

Slides and Song.—The regular monthly meeting of the Agassiz Association (Manhattan Chapter, N. Y. B.) was held Monday evening, Dec. 4th, at 139 East 40th Street. The business of the meeting was quickly transacted, as the evening was to be devoted to the entertainment of invited friends. An exhibition of slides made by members of the association was given, and a quartatte rendered several excellent selections.

The Stuber Dry Plate Co. has recently organized with W. G. Stuber as President, E. P. Stuber as Vice-President, and E. J. Reimers as Secretary and Treasurer. Mr. W. G. Stuber writes that they are at work on a very large dry plate factory, which will be constructed of brick and will be furnished with the most improved machinery, which he himself brought out from Europe. A large force of men are at work on the building, and it is expected to be ready by spring.

Fire.—Messrs. Simpkinson & Miller, dealers in photographic materials, frames, etc., at Cincinnati, Ohio, sustained a loss by fire Saturday night, December 12th. "Our entire stock was drenched by water and the greater part destroyed by fire," writes Mr. Miller; "we are compelled to secure a new location for temporary use until our building is put in repair again, which will be about 30 days. We cannot state at this moment regarding our stock, as it is still in the hands of the insurance companies. Our loss was fully covered by insurance, and we hope to get back in our old place within the month. Our temporary location is 173 W. 5th Street."

C. H. Sheen, dealer in artist's materials in the same building with Simpkinson & Miller, states that he had a stock on hand at the time of the fire worth $23,000, and that he is insured for $19,000. He states it is difficult to estimate his loss, but it will have considerable effect on him, owing to the increased amount of the business done at this season of the year. He expects to resume business at another address in a few days.

Photographing Chinese.—Acting Secretary Spaulding has instructed the Collectors of Customs at Buffalo Ogdensburg, Suspension Bridge and Plattsburg, N. Y., to have photographs taken of all Chinamen arrested for unlawful entry into the United States from Canada. It is expected thus to positively identify all Chinamen who return to this country after having been deported to Canada.

The Society of Amateur Photographers will give, about December 30, in the gallery of the Salmagundi Club House, an interesting exhibition of the work done by members of the society. The exhibition will be entirely composed of photographic lantern slides, and will undoubtedly be one of the best exhibits of its kind ever held in this country, neither money nor time being spared in order to obtain the highest artistic results from photography. The pictures to be shown by means of a lantern will represent scenes in all parts of the world.

The Case School Camera Club, Cleveland, Ohio, has elected the following officers: H. T. Lueke, President; A. G. Bishop, Vice-President; P. W. Cobb, Treasurer; R. B. Smith, Secretary; C. L. Kennicott, Corresponding Secretary.

The next meeting will occur December 18. At this meeting M B. Punnett will give a demonstration of the "reversal of the image" by tetrathrocarbimide ammonium bromide as discovered by Colonel Waterhouse.

"Amateurs and Professionals," says the New York *Times*, "are now on good terms. Experience has proved that the former have not encroached on the domain of the latter, as was at first feared to some extent. Professionals have found out that the more attention there is given to photography the better is their business, and the fact that while amateurs may secure all the pictures of a family, when the family wants photographs of its members carefully finished and for distribution among friends and relatives, it goes to the regular picture taker. The rapid growth and extension of the fad of amateur photography has only led to one result among the professionals—they make better pictures and they pay especial attention to their own department of portraits."

The Term Camerists, as applied to amateur photographers to distinguish them from the professionals, has apparently, to use a familiar expression, "caught on." For a long time the amateurs felt that some name should be adopted which would be appropriate and suggestive of the art as well as clearly separating them from the professionals. The word photographer invariably brought to mind the man who, after fussing for fifteen minutes behind a curious-looking instrument shrouded in a black cloth, would cry out "Now, look pleasant," and then, watch in hand, would keep the sitter in a state of mental distraction for what seemed several minutes, and then, perhaps, remove the plate-holder and retire to his closet without even telling the sitter that the terrible ordeal was over and that he could resume his normal cast of countenance if he chose.—*New York Times.*

New Use for Photography.—During the summer months M. Burinskiy, the expert chirographer of the Circuit Court of St. Petersburg, with the assistance of a physician and by the aid of chronophotography, made interesting studies on the handwriting of several persons. Chronophotography is a process by which instantaneous pictures are produced of objects in rapid motion. While a person writes one letter three or more pictures can be taken of his hand and pen. In this wise every motion of the hand of the writer is resolved, so to speak, into its

elementary muscular impulses. As the latter are subject to the nervous conditions of the writer, the writing for its appearance and expressiveness of character depends more on the temperament of the writer than on anything else. The results of M. Burinskiy's studies show that the opinions of chirographic experts on the identity of handwritings are in many instances erroneous; that under certain nervous conditions various persons may produce writings that are perfectly similar in character, while one person may at one time write in a quite different manner than at another.

There are no Portraits of Cleopatra, Yet We Know Her Beauty.—Of Cleopatra we have no adequate material portrait, nothing but representations on coins and medals, which are neither satisfactory nor conclusive. But this matters not. Plutarch tells us that her beauty, without being incomparable, was most seductive, her face charming, her whole person full of grace. Dion Cassius adds that her voice was melodious and of infinite sweetness. And what stronger attraction is there in woman than the charm of voice, that rarest of gifts, which holds the hearer spellbound and enchanted?

Elsewhere we read that she was queen of kings, empress of genius, most erudite lady initiated in the mysteries of old Egypt, builder of temples and palaces, rival of Isis.

History represents her as the superb heroine of the most superb romance of antiquity. And so the name of Cleopatra has taken its place among those names, magnificent and voluptuous, the harmonic grouping of whose syllables suggests to revere suave, ideal and luminous visions, and evokes the souvenir of delicious phantoms, glorified in turn by legend, art and history, writes Theodore Child in *Harper's Bazaar*.

Cleopatra is the name of one of the great lovers, beautiful according to the flesh, of one of the women born to charm men—Eve, Lilith, Delilah, Salome, Helen, Aspasia, Theodora. Of the brief association of atoms that formed these creatures there resulted something ideal, which remains in the dreams of poets and haunts the memory of mankind.

Around these names we concentrate all our vague conceptions of beauty, grace, seductive charm; to our imagination their vanished bearers appear most triumphant women. Perhaps, as Shakespeare says, Cleopatra was a most disloyal woman, but what matters her disloyalty? "Age cannot wither her nor custom stale her infinite variety." The poets cannot forget her glory.—*Exchange*.

HOW TO BE SUCCESSFUL AS A PHOTOGRAPHER.

THE *Juvenile Instructor*, of Salt Lake City, prints the following good advice from C. R. Savage, who has established a reputation as a first-class photographer:

As to its healthfulness, there are as few objections as there would be to standing behind a counter. In the present condition of the photographic business the unhealthy work has been eliminated. Secondly, any person who has ambition to excel would find it tedious and trying to his or her patience, otherwise, it is agreeable and is devoid of the drawbacks in other vocations.

2d. "What occupations or inducements does your calling present for young men to acquire it? Is there room or demand for many or few?"

First, there never is a great demand for photographers' help, the number being necessarily limited to the size of the town, and the perseverance necessary to acquire proficiency greater than most youths possess. I can say with certainty that all the Utah boys who have adopted photography as a business, and who have stuck to it, are doing well and always have employment. Many of them are quite well fixed financially; but they are the persistent workers, and not the ones who lack the quality of close attention to business. In a new country like ours photography can be combined with other work, and there always has been a chance for a young man to start in the new towns springing up. Portrait photography will always be in demand, more so than landscape. Tens of thousands of ladies and gentlemen obtain good wages all over the civilized world in different branches. The division of labor in first-class studios comprises, first, the positionist, or operator; second, the printer; third, the retoucher; then follow the mounting and finishing—generally done by ladies; in fact, in this city some of our best retouchers are ladies, and there is one lady operator taking photographs.

The number of youths and ladies employed at the Art Bazaar in photographic work is nine—all natives of Utah. If a young man desires to become a competent photographer, he must be willing to do a great deal of unattractive drudgery for a long time; but when he can either print good, or re touch in first-class style, or, what is better, be a good operator, he will never lack employment, as far as my experience goes.

The public taste is educated to a higher standard than it was formerly, and a man or woman must be able to meet it—or keep trying until they can. Really first-class workmen are very scarce and cannot be hired. From this fact I should say that any lady or gentleman having determined to follow the profession of photography would be likely to succeed if so they had determined.

3d. "What do you consider the most essential qualifications to enable a young man to acquire proficiency in your profession?"

First, a good address. Second, a pleasing manner. Third, a knowledge of the elementary principles of chemistry, optics, and art principles; it is not necessary to know how to draw and paint, as the camera will draw and his brains direct its action. Fourth, he must be temperate, and better if he does not smoke. The fumes of chemicals and the air of dark-rooms have but little effect upon those who avoid the habits before named. Fifth, he must be patient, deliberate, and not easily daunted. Sixth, it will help him greatly to know something about book-keeping and the usages of business. I am sorry to say that the photographic fraternity have the lowest commercial rating of any class of business men. Of course, there are always exceptions to the general rule.

Men can operate, print and retouch. Women can do the same; they are generally acting as clerks, mounting, spotting out imperfections and retouching. Printing photographs exposes the printer to extremes of weather and other disadvantages, which ladies are not adapted to work at.

If any of my readers have thought that the practice of photography does not mean hard work, they will reach a different conclusion if they make a success of it.

Photographic Societies.

HIAWATHA CAMERA CLUB.

THE first annual meeting of Hiawatha Camera Club, of Minneapolis, was held December 1, 1891, and the following officers were elected: Dr. M. G. Jennison, President; Prof. J W. Bell, Vice-President; C. A. Hoffman, 2715 Second Avenue, Secretary; George B. Eustis, Treasurer; Dr. Twitchell, A. L. Eidemiller, Miss F. N. Stanchfield, Executive Committee.

We started the year with a large membership.

A paper was read by Prof. W. X Sudduth on Microphotography, which contained very many valuable prints of interest, and was followed by a discussion by members and Professors Nachtrieb and Fellows, following up the subject in so able a manner that it became very interesting. This was followed by an interesting paper on the objects of Camera Clubs, by Dr. Twitchell, which added new life in the members.

It was voted that every other regular meeting to devoted to lantern work, or subjects illustrated by lantern views.

The question of outings for the following summer was discussed, but laid over to next meeting.

The first Tuesday of every month was selected as regular meeting days for following year.

C. A. Hoffman,
Secretary.

PROVIDENCE CAMERA CLUB.

AT the regular meeting of the Providence Camera Club, held Tuesday evening, November 24th, the members were given an account of using bromide paper that ought to set many of them at work with this method of making pictures. Mr. R. C. Fuller read a highly interesting description of all the various processes in which bromide paper is used, and at every new method mentioned he referred to a specimen of it which he had placed upon the walls of the room. Comparisons of different developers and toning processes, glacé and squeegeed surfaces were accurately described and illustrated. Among the novel uses, Mr. Fuller showed window transparencies made with ordinary bromide paper and toned, that it was almost impossible to discover were not really transparency plates. Lantern-slides from transferrotype paper and toned were handed among the members and explained, and an interesting matter in this connection was the exhibition of some blue prints.

These were the backing of the transferrotype lantern-slides and were described as follows: "To show you that the use of the clearing solution of acetic acid and water, in connection with oxalate developed bromide paper is a necessity, I call your attention to these blue prints. As the paper backing was so soon to be removed from the lantern-slides, I thought no harm would come if this solution were omitted in this case. When, however, these prints were put into the toning solution containing red prussiate of potash, enough iron had been absorbed to make the exact conditions for the blue process, hence these blue prints. This would not have occurred had they been stripped before toning, which might have been done and this difficulty avoided." In this practical talk Mr. Fuller showed some pictures that were failures, among the more successful prints, and as he described *why* they were failures, many difficulties may thus be avoided by workers of this process of photography.

A vote of thanks was extended to the lecturer for his instructive paper, and it was requested that he allow the collection of prints and enlargement remain on exhibition for one week for further examination.

SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

AT the regular meeting of December 8th, President Stebbins in the chair, Mr. F. C. Beach exhibited a magazine camera named the "Velox." It was pointed out by members that the plate-changing arrangement in this camera was not new, resembling very much others already covered by United States patents.

The Scovill & Adams Company exhibited two immense panoramic pictures from negatives on Carbutt's color-sensitive films, by W. H. Rau, of Philadelphia. They were greatly admired by all present. These are the pictures which have been on exhibition at the salesrooms of the Scovill & Adams Company. They depict the Great Horseshoe, on the Pennsylvania Railroad, and Allegrippus, on the same road. They are 18 x 48 inches in size. Professor Ehrmann described the apparatus by which these photographs were made, and the means employed by Mr. Rau in making them.

Mr. William McMurray then spoke in favor of a more general adoption of optical lanterns and described his method of making lantern-slides on dry plates. He also described an easily constructed apparatus for making slides, and referred to the table on page 304 of the "American Annual of Photography and Photographic Times Almanac for 1892," as especially valuable in his work. He stated that he always used the Waterbury Camera in securing negatives for slides, "none being better for this particular purpose," as he says. He gave the following as his developer:

Hydrochinon	100 grains
Sulphite of soda	400 grains
Carbonate of potassium	300 grains
Water	20 grains

This is diluted as the exposures require.

The eikonogen developer, which he found to work equally well, he gave as follows:

Eikonogen	880 parts
Sulphite of soda	300 parts
Carbonate of potassium	200 parts
Water	20 parts

He also gave a pyro developer, which has given satisfactory results in making lantern-slides:

Pyro	10 grains
Sulphite of soda	40 grains
Carbonate of potash	20 grains
Water	5 ounces

After a vote of thanks to the speakers of the evening, the society adjourned.

The Editorial Table.

The Scientific American Cyclopedia of Receipts, Notes, and Queries. Edited by Albert C. Hopkins. New York: Munn & Co.

For nearly fifty years past the choice information resulting from the practical experience of the very best writers in nearly every branch of the useful arts has been regularly garnered in the *Scientific American*, especially in the columns of Notes and Queries and Correspondence. This vast compendium of useful information, carefully digested and tested, forms the basis of the present work. To these important additions have been made after laborious researches among difficult and inaccessible mysteries known as "trade secrets." The work contains 680 pages of closely printed matter arranged in alphabetical form, the size of page being royal octavo. The book is neatly bound in dark green cloth with gilt lettering, and sells for $5 per copy. This book should be in the laboratory of every photographer.

Cameran.—The organ of the Photographic Club of Helsingförs, Finland, is a neat little monthly, ably edited by Mr. K. E. Stahlberg. The November number contains a report of a meeting of the club, articles on instantaneous photography, on photographic objectives, gleanings from foreign journals and notices generally found in journals of that kind. We are happy to enter into closer relations with a society and journal of such an out-of-the-way place as Helsingförs is described to be, in the "American Annual of Photography for 1892," by Mr. Charles Hamfeldt, the president of the club.

The Calendars have commenced to come in, the Broude Manufacturing Company, of Pittsburg, Pa., being the first dealers in photographic supplies to be represented. They issue a beautiful panel oleograph about 10 x 18 inches in dimensions, with a small pad calendar affixed in a lower corner. The picture represents a pretty-faced boy sitting in a swing.

Waterman's Illustrated Album of the World's Columbian Exposition is an attractive publication. It is published by C. E. Waterman, the Western photographer at 24th Street and Jackson Avenue, Chicago.

Mr. George H. Johnston, of Bridgeport, Conn., has sent us specimen photographs of carriages taken directly from the original. These copies are very cleverly done, clean, sharp and accurate, testifying to the skill of the operator.

Record of Photographic Patents.

464,998. Shutter for Photographic Apparatus. William E. Schneider, Washington, D. C.

464,999. Tripod. William E. Schneider, Washington, D. C.

465,178. Photographic Process for Printing in Colors. Johann C. Hösch, Vienna, Austria-Hungary.

465,277. Photographic Printing-Frame. Henry Kuhn, Springfield, Mo.

Queries and Answers.

185 C. G. W. writes: Will you tell me how albumen paper can be made limp for mounting (aristo paper) on it, *i. e.*, so the finish (aristo print) will lay limp and flat, mounted aristo *back* to albumen *back?* I tried 3 ounces alcohol, 1 ounce ammonia, and soaked albumen paper in it about 10 minutes, but finished prints curled.

185 *Answer.*—Soak the albumen paper in pure alcohol. What the alcohol is expected to do is counteracted upon by the addition of ammonia. Soak long enough to effect perfect coagulation, dry, and before mounting the aristo print upon it, dampen the paper and flatten it out. Dry the mounted print between bibulous paper and under slight pressure.

Print and mount should be of the same size, and the print of the kind known as aristo with a collodion basis.

186 A. B.—(1) What is meant by the "equivalent focus." (2) What is the meaning of "*f*"; as in $\frac{f}{4} \times$ (sig) *B* 34.

186 *Answer.*—These questions have been repeatedly answered in these columns. For detailed information we advise our correspondent to read on No. 1, Equivalent Focus, page 73, and on No. 2, Diaphragms, page 46–49, of Wall's Dictionary of Photography, Scoviil & Adams Company, publishers.

187 W. H. D.—Will you kindly publish in your query column a formulæ for sensitizing albumen paper?

187 *Answer.*—First of all you must use a first-class albumen paper. The *three crown* is the best you can use.

SENSITIZING BATH.

Nitrate of silver	1 ounce
Distilled water	8 ounces

Filtered.

Float 1½ to 2 minutes. If acid, neutralize with carbonate of soda, and allow the precipitate of carbonate of silver to remain in the stock bottle. Merely decant the solution from the sediment, then filter. Paper to be sensitized requires a certain amount of moisture, as, if very dry, it does not take the silver readily, dries in tears, and causes dark spots on the prints. It is therefore necessary to place the paper to be sensitized between sheets of filtering or blotting paper in a cool and moist place the night before use (a moist cellar is the most convenient place), when it will absorb sufficient moisture to be fit for floating without trouble. Fume for 30 minutes with strong liquid ammonia when the paper has been thoroughly dried after silvering. Lay the paper aside for a few minutes that the free ammonia fumes may escape before printing.

188 MYRA SHAW has had the misfortune to over-develop many of her lantern-slides made recently. Is there a way to reduce the density to make the slides serviceable?

188 *Answer.*—You can get very fine slides by reducing the density to almost any extent with Farmer's solution. See No. 71, Standard Formulas, page 334, "American Annual of Photography," or, still better and more reliable, with the formula No. 74, of the same page and book.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

DECEMBER, 1891.

NOTICES TO STUDENTS.

Examination papers have been presented to 76 students of various classes. They are expected to be answered before March 1, 1892, and be accompanied by three finished photographs, the student's own work. Prints indiscriminate of method must also be made by the candidate. Plain paper or albumen, kallitype or cyanotype, diapositives on glass or celluloid, in fact any kind of positive is admissible.

We invite all members and ex-members of the School to contribute to the general exhibition of photographs to be held at the Assembly Grounds next summer. We request contributors to send at least six finished photographs. For exhibition purposes the prints may be made by a professional. Lantern slides will be in great demand next summer at the Assembly Grounds, and will figure prominently at the public exhibitions in the Amphitheater, and on the lawn before the Athenæum. The instructor reserves to himself the right to reject all contributions in his opinion not above the general average of Chautauqua work.

We recommend all of our students to read "The American Annual of Photography for 1892," as it is unusually rich in instructive matter in the theory and practice of photography. Various printing methods are ably discussed by experienced authors, portraiture and landscapes, various manners of illuminating the subject by artificial light, the construction of and working in the dark chamber, lantern-slide making, photo-mechanical printing processes, in fact every branch of photography is represented. Standard formulæ and tables have been thoroughly revised and corrected, when it was required to do so, and several instructive additions have been made to this department of the "Annual." Numerous handsome illustrations, representing a variety of mechanical printing processes, embellish the book. They are as interesting as they are instructive.

We will soon be able to present to our students the long-expected "Photographic Chemistry," by W. Jerome Harrison, in book form. The work is now being printed, and only a few weeks will be necessary for its completion. We have always considered Mr. Harrison's book, being now published in serial form in these columns, to be just what is wanted to instruct the scholars of the Chautauqua School in chemistry and the theory of photographic processes. All of them will be entirely satisfied with it; those advanced in chemistry and physics, the students of the post-graduate class, as well as our most numerous class of students, who when joining the class knew absolutely nothing of chemistry.

In addition to studying the foregoing, we recommend to read "The Photographic Image," by P. C. Duchochois, an old and valuable contributor to photographic literature, an eminent chemist and experienced operator.

Several complaints have of late been made of the insufficiency of some brands of gelatine emulsion plates, in the reproduction of engravings in line or drawings. The results attained have been in numerous instances but very feeble and of monotonous character, far from being a correct representation in reduced or natural size of the original, and although the negative be in sharpness and detail all that can be possibly desired, the prints made therefrom lack brilliancy and contrast. The cause of such failure should be looked for less in the emulsion, although in many instances it may have much to do with it, but mainly in the time of exposure. When objects without half tones are to be photographed, black lines upon white ground only, no matter how close individual lines may be to each other, like in wood or steel engravings, the exposure should not be as long as the general tone or depth of tone seems to require, but be corresponding to the pure whites of the paper only.

In a correctly made negative, copy of an engraving, the interstices between lines and the ground surrounding outrunners should be of absolute intensity, the lines be transparent. To obtain these effects the object to be copied from must be

so placed that but a minimum of light is reflected from its surface, the exposure to be made for the whites only. For this reason a very slow plate is always preferable for that class of work. A rapid plate will doubtless give the same result in the end, but on account of its greater sensitiveness over-exposure is more likely to occur than with a slow plate. In a series of experiments made to ascertain the relative sensitiveness of several brands of plates we have encountered some requiring an exposure of 30 minutes, when, all other conditions being the same, its extreme was fully exposed in 24 seconds. Were we to expose a plate of the first sort for 5 minutes, and the correct time be but 4.30 minutes, the effect produced by the additional 30 seconds would not be uncontrollable in the development. With the other, the more sensitive plate, the adjustment of time would be necessarily very accurate, without which over-exposure beyond remedy is very easily to occur. No matter of how excellent quality other plates may be, for purposes as above stated, only those of low sensitiveness can possibly give decided results. Of these, again, we find the Carbutt *Process* plate the best probably in the American market. When we expose such plates correctly and develop them with old hydrochinon solution, or, still better, with hydrochlorate of para-amidophenol, absolute intensity and transparency of the negative will not be wanting. Over-exposure easily to occur with rapid plates is followed by fog or haze in the transparent parts, which, in conjunction with the feeble negative deposit, produces such prints as we have often seen.

Carbutt's plates of lower sensitiveness are always and without exception of perfect clearness. An insufficient developed negative made upon them may be easily intensified, provided but a limited number of proofs is wanted, with uranium nitrate, ferri-cyanide of potassium and acetic acid, as described on page 583 of the volume of the PHOTOGRAPHIC TIMES.

THE EXCHANGE CLUB.

Notwithstanding the efforts made to improve the conditions of the club, the November exchange has by no means been as satisfactory as there was reason to suppose it would be. Of about 40 members of the club, 23 had promised to contribute, and of them but 15 have materialized. Of these there are a few good photographs, some of them are quite indifferent in the negative, and with but two or three exceptions printing is done badly. Among most there is a deplorable want of uniformity, and but rarely can we find two prints of the same tone and depth in one collection. That should not be so. To work to our mutual satisfaction, the prints must be made from a good negative and be in every ramification alike. The best of the November exchanges is doubtless that of No. 406, W. S. Waterbury, a 5 x 8 group of ferns of extreme sharpness and detail, printed on a matt surface silver paper; see formula II. of the Chautauqua Lessons on plain paper printing. If one selects a good print from the lot there is no fault to find, but there are some among them too light, others of rather indifferent tone, doing credit neither to the negative nor the otherwise excellent printing method.

No. 221.—Mrs. C. L. Pierce. "Apple Orchard," made on Carbutt color-sensitive plate, with ray-filter of moderate intensity, is a very beautiful photograph, with finely developed details in slightly clouded sky and foilage. The collection is distinguished by its thorough uniformity of prints. They are all alike, of a fine purple, and neatly trimmed.

No. 461.—Miss Adelaide Skeel. The picture has been described in the November number of the Supplement. There are but a few good prints among the 23 sent, the majority being altogether too light to be effective. Bad printing detracts from the value of an otherwise excellent negative.

No. 541.—Henry Caufield, "Glens of Cuyahoga," Ohio, a 5 x 8, from negative of highest technical merit. Optically speaking it is not so. The Morrison wide-angle lens has exaggerated very much the dimensions of the rocks in the immediate foreground, and destroyed the perspective effects at the same time. Our good friend's Ross lens would have done better here. Nevertheless must we speak of the picture in the highest terms, and we would have placed it in the front rank of this exchange if the prints were not so very dark and so very much over-toned.

No. 487.—Thomas J. Bray, "On Mosquito Creek," a $6\frac{1}{2}$ x $8\frac{1}{2}$. Clusters of elms and chestnut trees form the main part of the picture, reflected in the perfectly still water of the creek with painful exactitude—so much so, that by turning the picture either way, up or down, one is doubtful which is the picture and which the reflection. To overcome this not very handsome effect we have seen a very clever printing dodge applied, by printing in ripples into the sheet of water from another negatives. If friend B will run up to Lake Erie and take a few negatives of the kind required, he will have ample opportunity to improve many of his pictures that labor under the same difficulty.

No. 525.—Miss Lydia Strawn. A picture of high interest to Chautauquans—Fred. Starr, Professor of Geology and Anthropology, and leader in the lectures on Christian Ethics. He is represented in a group of his boys, to whom he is a great friend.

The negative is good, well-timed and developed, and the group nicely composed. We would be glad if we could say something similar about the printing. But that is all through without the least redeeming quality. Some of the prints are over, other very much under-toned; few of them are frightfully dark, others not dark enough. If our fair friend has so much difficulty with printing on Omega paper, why not return to the orthodox albumen ready-sensitized?

No. 122.—Gould W. Hart, "Meadow and Mower." Good specimen of what the Waterbury hand-camera can do in the hands of a good operator. Prints on albumen paper unexceptionally good.

No. 271.—James Beattie, "View on Pearl Creek." A very well selected 5 x 8 view, scene of the village of the same name, printed and toned well on Omega paper from excellent negative. Clean and accurate work all through.

No. 483.—F. C. Green. A 5 x 8 "Fructidore Mexicano," or Mexican fruit vender. Very interesting subject, technically quite good, but the figure is too large for the plate; on an 8 x 10 the relief of the figure would be much better, and the unsharp background be not as objectionable as under present circumstances. It is a kallitype, or iron print, of good quality. We congratulate the student on the success had with the method.

No. 495.—Miss Lucy Baldwin. View of the City of Roanoke, Va., taken on Carbutt color-sensitive plate. A very carefully and accurately made picture, printed upon albumen paper, uniform in tone throughout the collection. This picture is nevertheless not fit for presentation on account of the ugly spot in the sky. Whenever such accidents occur resort to the retouching brush before the edition is printed. In professional work such apparently little iniquities may prove very disastrous.

No. 152.—Miss Ella White, "Hull's Mill," R. I. Picture of old grist mill and dam, surrounded by large masses of heavy foliage. Details very good, but the negative not being sufficiently well developed, the print lacks brilliancy. Negatives of this character had better be printed on Omega paper, if a slight intensification with iodide of mercury is not preferred.

No. 38.—Mrs. Laura H. Mull. "Gate to Halehurst Park," the residence of the diligent student. It has been made with a Ross portable lens, is correctly exposed and exceedingly well developed, showing very fine detail in foliage, and all the darker portions of the picture. It is refreshing to see these good albumen prints among so many inferiors made by other methods.

No. 207.—Miss M. S. Turner "A fish." There is a want of general sharpness in this picture, and its main feature, the fish, scarcely perceptible. The bridge and one figure are sharp; the rest, including the fish, sadly out of focus. Why did not No. 207 show to the club one of her many good pictures? Those exhibited by her in Chautauqua last summer were so much admired.

No. 469.—John Scheide. A reproduction from print, we are sorry to say, is not at all good. A Chautauqua graduate must do better work.

No. 532.—P. W. B. Wessels. The members of the club are indebted to Mr. Wessels for this highly interesting picture, copy of a tablet describing the "Deluge" pictorially, and by cuneiform writings, and excavated from Indian mounds in Michigan. If the tablet is genuine, which no doubt it is, the theory advanced, the American continent having been at one time closely connected with Asia, gains more and more in probability by such ancient monument, but makes it understood the alleged age of 2000 years is very much underestimated, when we consider the geological conditions of the two continents; and then the Hebraic history cannot possibly be correct, at least as far as to the time of events.

Photograph and prints are good. We are much pleased with the progress the student is making.

Queries Answered.

No. 556.—(1) I notice in Photographic Times your advice to students to adhere strictly to the Chautauqua toning bath. Is this the bath given in the *Photographic Instructor* for freshly silvered paper, or the one given for sensitized albumen paper? If for freshly silvered paper, which one is meant? (2) I notice in the "Annual," and also in "Burbank's Printing Methods," a toning bath called "The Chautauqua Toning Bath." Is this the one you refer to? (3) I also notice a discrepancy in the formula as given by these works, wherein one states that acetic acid is to be used in first washing water, while the other says last washing water; which is correct? Do you advise using acetic acid? (4) After silvering a batch of paper,

and subsequently sunning the silver bath, a dark precipitate settles in the bottom of the bottle, which I filter out before using again. How am I to filter out this precipitate without taking out the carbonate of silver at the same time? The only way that suggests itself to me is to let the precipitate remain in the bottle along with the carbonate of silver and decant the clear solution, but am not positive whether this will have any bad effect on the silver bath. (5) I have come into possession of a silver bath belonging to a party who has adopted Omega paper. Can I utilize this by evaporating down to about an 80 grain solution, and using it for strengthening my regular silver bath? What strength solution do you recommend for this purpose?

Answers.—(1 and 2) It is that in the lesson on ready-sensitized paper, but can be used advantageously for freshly prepared paper also. (3) Acetic acid reddens the print. Acid is added to the wash water to enable the operator to watch the toning process or the changing of tone from one to another with greater facility. We prefer to add the acid to the last wash-water but one. (4) You can do so, but when rectifying a bath it is perhaps better to take out the carbonate of silver too, and add fresh when the bath is in perfect order. As you seem to print a great many pictures, we advise to save all remnants and solutions containing silver for final refining. It pays, we assure you. (5) We advise to add a trifle of ammonia to the old bath, enough to make it decidedly alkaline, sun for a day or two, boil down to half the original bulk, filter, reduce to desired strength, and neutralize with nitric acid. You can use the bath now for sensitizing, when it should be of about 45 hydrometer degrees, or keep it for strengthening the usual bath, when its concentration must be considerably higher, of course.

No. 484.—(1) Does gold toning bath tone after it has become darkened or discolored? (2) What do you use for spotting out pinholes? (3) How can I remove a piece of sensitized paper, which stuck to the plate while printing, without injuring the film? It's a small piece, but it's directly in the center of the plate; so, of course, spoils the picture.

Answers.—(1) It does not, but you can restore it by adding a few drops of hydrochloric acid, or as much till the solution becomes clear again. Finally neutralize acidity by means of any of the usual alkalis or alkaline salts. (2) Simply India ink. To block out large surfaces take Weber's liquid opaque. (3) As soon as you see that the printing paper adheres to the gelatine film, plunge the negative in water, when the paper may soak off without further harm But when the silvered albumen film remains long in contact with the gelatine film, the free silver nitrate adhering to one is partly conveyed to the other and colors it brown. After the paper has been removed, the stain can be taken out by touching with a camel's-hair brush wet with a weak solution of potassium cyanide, and subsequent washing. Omega paper or any other gelatine paper adhering to the negative cannot possibly be detached from the negative.

PICTURES RECEIVED.

No. 461.—A very good cattle piece on blue paper; an extremely fine genre, "Posing the Model," a shepherd trying to get an old ewe in position preparatory to being photographed, and a "Coaching Trip," not as sharp as one would like to see, and in composition inferior to the foregoing. There are also two kallitypes printed from very feeble negatives, and enormously over-exposed. Any way kallitype paper is not fit for printing from such negatives.

No. 483.—Corridor in Old Church, Chihuahua, Mexico. Also a kallitype, toned sepia, with beauful details and of high brilliancy.

No. 555.—City Park of Denver, Col., would be a very pretty picture were it not for a slight flare in the center of it. By rubbing the area of the spot with an alcohol-moistened rag, the veil can be so much subdued as not to be visible in the print. "Old Man of the Mountains," and "Bridge and Glen in the Rockies," are perfect pictures, well printed and toned on Omega paper. "Portrait" of the student, proofs from retouched and unretouched negatives.

Good negatives, good prints, retouching admirably well done.

No. 485.—Sends a large number of very poor prints, perfect failures in fact. They are from very fine negatives, equal to those we have had the pleasure to see of late. The failures in printing are due to an inferior class of Omega paper, of which, we are sorry to say, some has found its way into the market. If our friend cannot get good material at his own residence, why not apply direct to headquarters?

Several "Queries Answered" and "Pictures Received" must stand over till next month.

THE PHOTOGRAPHIC TIMES

AND

AMERICAN PHOTOGRAPHER.

VOLUME XXI.

W. I. LINCOLN ADAMS, EDITOR.

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1891.

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THE PHOTOGRAPHIC TIMES.

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Holyoke, Mass. J. A. Phelps has sold out.

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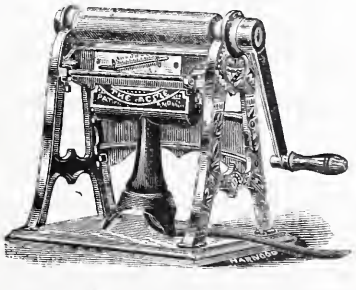
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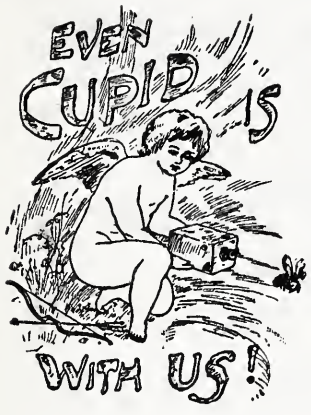
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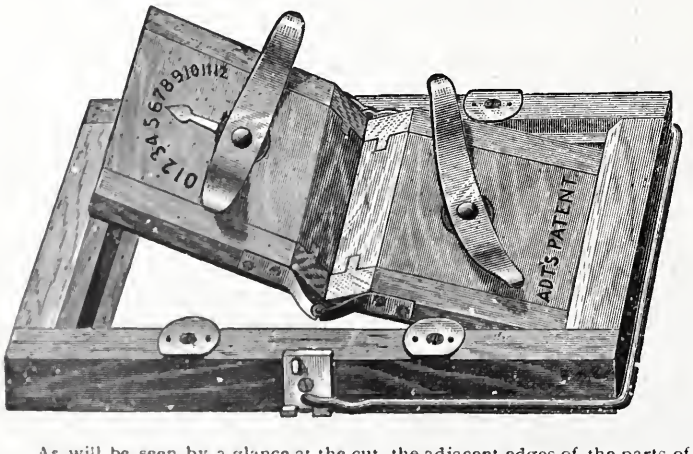
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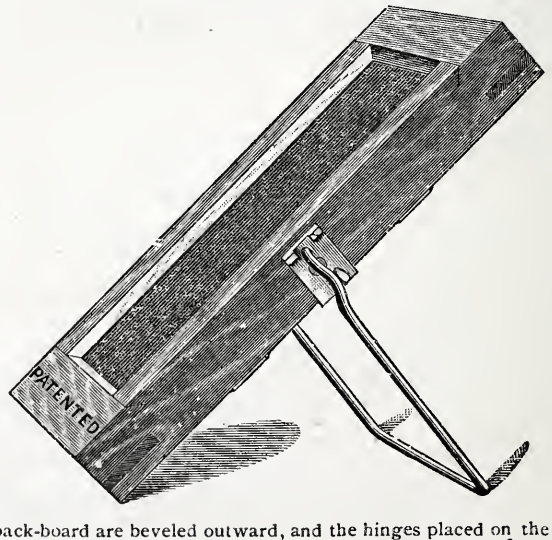
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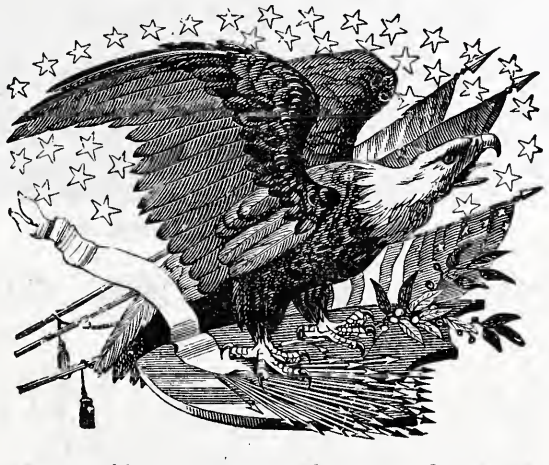
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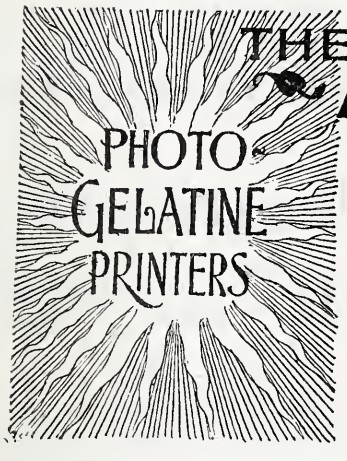
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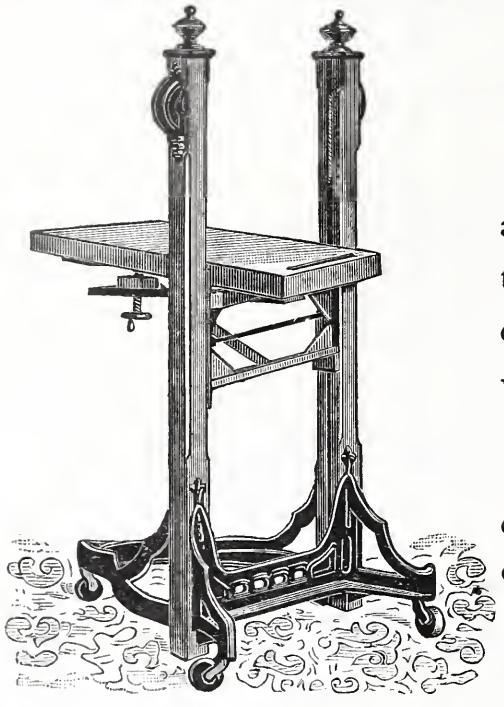
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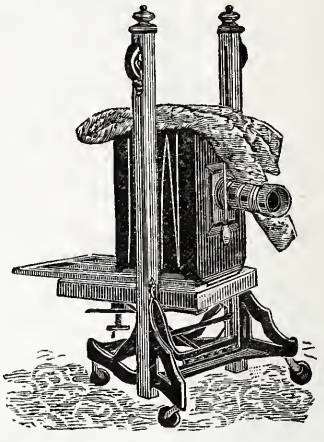
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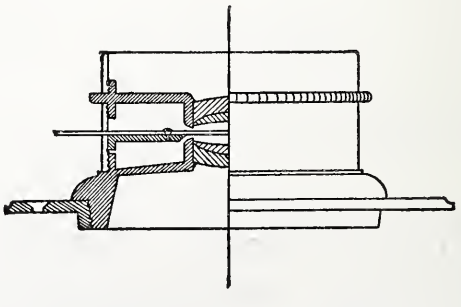
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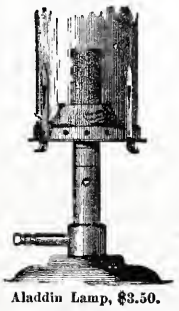
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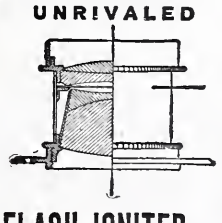
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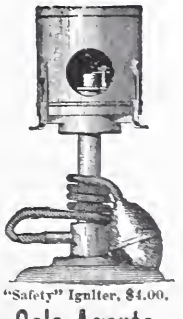
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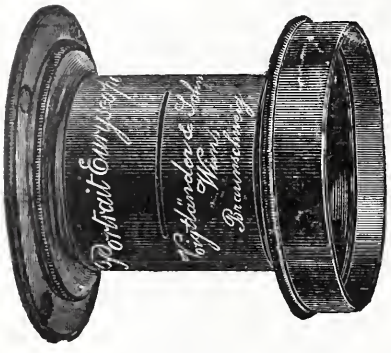
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(Formerly *The Photographic Herald.*)

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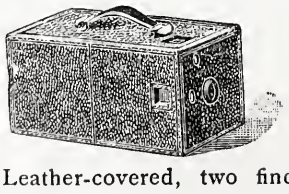
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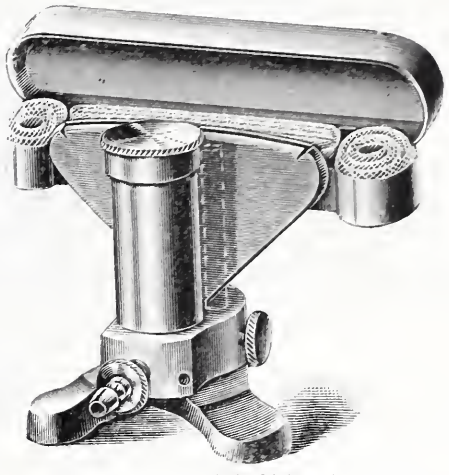
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Dimensions, 4½x3x2½ inches.

Produces a VERTICAL SHEET FLAME, which gives the most **effective** light, and besides so thoroughly consumes the **pure magnesium** used as to leave scarcely perceptible smoke, no bad odor, or dirt. The powder feeds automatically from the storage chamber. Repeated storage flashes, or one prolonged for two or three seconds, can be made. It is operated by lung pressure. The lamp can be held in the hand (a handle is provided), or attached to a stand rod. One lamp will light the largest rooms. Two to three, ordinary church, theatre, etc., interiors. A battery of lamps can be discharged together.

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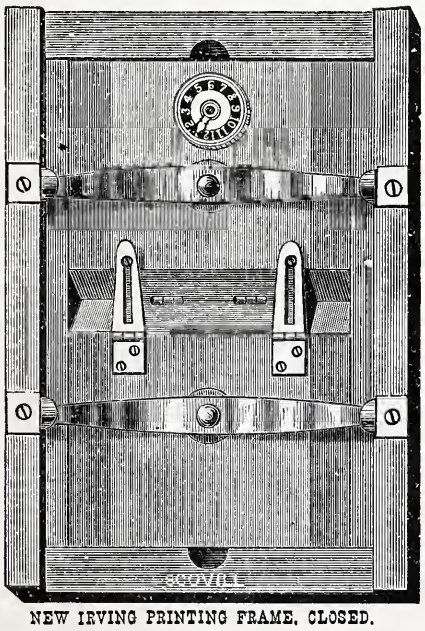
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With Adjustable Supports.

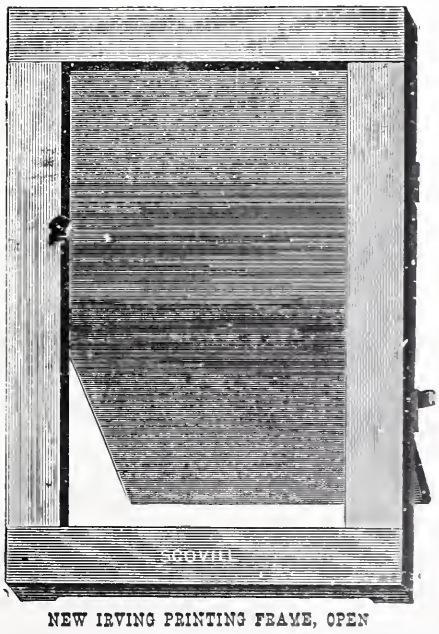
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The NEW IRVING FRAMES are now all made with adjustable supports. They are in workmanship, design, and other respects, superior to all other printing frames.

PRICES FOR HALF OR TWO-THIRDS OPENING STYLES.

3¼ x 4¼	$0 45
4 x 5	48
4¼ x 5½	50
4¼ x 6½	55
5 x 7	60
5 x 8	65
6½ x 8½	70
8 x 10	80

When made with back to open lengthways, ten per cent. is added to the foregoing prices, for the respective sizes.



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The continuous felt pads, made especially to order for us, insure absolute protection and uniform pressure throughout. The Irving Patent Catches lock the back, so that when one flap is open there is not the slightest danger of the flaps, paper or negatives slipping.

The springs are cut by dies of specially tempered and tested metal, and are riveted to the backs with washers underneath to protect the woodwork.

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The tally does not depend upon any other part of the frame to lock it, for the pointer will remain in place no matter what is done to other parts of the frame.

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13 First Prize Medals.

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We take great pleasure in announcing to American Photographers that henceforth we shall be enabled to supply them with JAMES SWIFT & SON'S PARAGON LENSES.

The reputation of these Lenses abroad is superior to that of any other make. They have been selected by the following named institutions because of their unequaled qualities and excellence.

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The Universities of Oxford and Cambridge, King's College and Edinburgh University College Schools.

Owens College, Manchester, besides the Governments of France, Germany and Italy.

The SWIFT LENSES have been awarded no less than seven gold medals, besides numerous diplomas of honor.

They are manufactured from the new ABBE-SCHOTT glass, which is undoubtedly more uniform in quality and specific gravity than the best optical flint and crown glass heretofore made ; hence the lenses are of a uniformly superior quality.

The Rapid and Portable Paragon Lenses

Are supplied with Iris Diaphragms and mounted in brass as well as aluminum; while the WIDE-ANGLE PARAGON LENSES are fitted Revolving Diaphragms.

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IT IS CALLED

STAR BROMIDE PAPER.

☞ **This paper does not blister, and is Extra Rapid.**

Nos. "1," "2," or "3."

REDUCED PRICE LIST.

REDUCED PRICE LIST.

CUT SHEETS.

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3¼x4¼	$0 22	6 x 8	$0 90	17x20	$5 75
4 x5	0 36	6½x 8½	1 00	18x22	6 75
4¼x5½	0 45	8 x10	1 35	20x24	8 10
4¼x6½	0 50	10 x12	2 05	22x27	11 25
5¾x6½	0 54	11 x14	2 70	24x30	13 00
5 x7	0 60	12 x15	2 95	25x30	14 00
5 x7½	0 63	14 x17	4 10	24x36	16 00
5 x8	0 68	16 x20	5 40	30x40	22 50

Other sizes in proportion.

If ordered in packages of less than one dozen, 25c. extra will be charged for packing.

IN 10 YARD ROLLS.

10 in. wide, p. yd.	$0 52	16 in. wide, p. yd.	$0 81	24 in. wide, p. yd.	$1 22
11 " "	0 66	18 " "	0 90	25 " "	1 26
12 " "	0 62	20 " "	1 00	30 " "	1 52
14 " "	0 72	22 " "	1 10		

No. "1," Smooth surface, thin, for proofs, positive printing, copying drawings, etc., by contact.

No. "2," Smooth surface, heavy, for positive printing, enlarging, and working in ink, oil and water colors.

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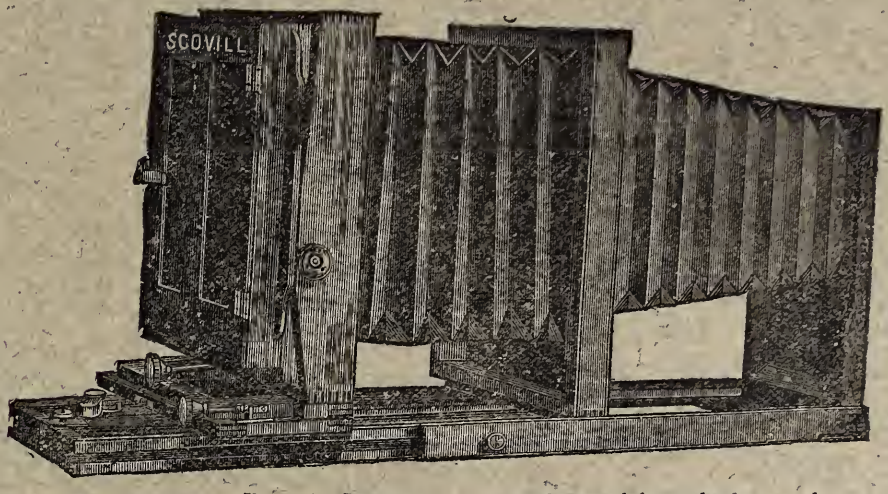
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No.	Size.	To cover plate.			With Double Swing-back.
5....	8x10 ins.,	with platform	30 in.	long.....	$38 00
6....	10x12 "	" "	36 "	.....	48 00
7....	11x14 "	extension "	48 "	and vertical shifting front.....	64 00
8....	12x15 "	" "	48 "	do	72 00
9....	14x17 "	" "	60 "	do	76 00
10....	16x20 "	" "	65 "	do	88 00

No.	Size.	To cover plate.			With Double Swing-back.
11	...17x20 ins.,	extension platform	65 in.	long and vertical shifting front	90 00
12....	18x22 "	" "	70 "	do	100 00
13....	20x24 "	" "	72 "	do	110 00
14....	22x27 "	" "	72 "	do	130 00
15....	25x30 "		80 "	do	170 00

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(Patented.

These are the only Stands suited in workmanship and finish, also in size, to the large American Optical Co.'s Cameras, with their great length of bellows and extension platform. Practical portraitists cannot fail to admire the ease with which these stands can be adjusted at any desirable height or inclination, and the noiseless manner in which they may be moved from place to place, their elegant appearance and accurate construction.

Instead of the clumsy levers and racks, by which accurate adjustment of the platform was obtained in the older stands; the proper elevation and inclination are produced in the "Elite" stand by cog-wheel and snake screw, and the manipulation at one side by a wheel with handle, and within reach of the operator, so that he may adjust the height or inclination of this camera without taking his head from under the focusing cloth. By means of the wheel worked at the rear endof the platform, the horizontal position of the platform may be inclined upward or downward to a limit of 15 degrees. A great advantage from this movement, we observe, is that a true horizontal position—so difficult to obtain in the old camera stands—is, with these, an easy matter to effect. This is especially important to those who may use them for reproduction work. In the No, 2 size the platform is fifty-two inches long and twenty-five inches wide, and its length may be increased to seventy inches by an attachment which slides out forward, making it quite long enough for supporting a large copying camera. Then a semi-circular cut-out, to the rear end of the platform, is a convenience to the operator, who is thus enabled not only to stand closely up to the ground-glass, no matter how for the camera may have been pushed forward, but bending of the body is obviated, which is quite a necessity with all the older stands.

"ELITE" STUDIO STANDS.	No. 1 Size.	No. 2 Size.
PRICE, with Rack and extension for Plate Holder	$32.00	$36.00
Highest point from platform to floor	48	48
Lowest " " " "	32	32
Width of platform	22	26
Length of platform without attachment	45	52
" " with "	60	70

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